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Abstracts

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for Doctors, Nurses, Nutritionists, Dietitians, Physiotherapists

Body composition, physical exercise and muscle biology (P001-P010)

P001

Intradialytic Cycling Improves Nutritional Parameters in Hemodialysis Patients with Baseline Serum Levels Outside Target Range

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Objective: Physical activity is a key element in preventing chronic disease. Studies examining the impact of intradialytic exercise (IDE) on nutritional parameters have reported mixed results. The aim of this study was to address a gap in research by evaluating the effect of IDE on patients with nutritional parameter serum levels within and outside target range (OTR) prior to exercise initiation.
Method: Nutritional parameters in a pre-exercise and exercise period were retrospectively reviewed for 31 adult hemodialysis (HD) patients who engaged in one to three IDE sessions per week for nine to 28 weeks.
Results: Findings indicated that patients with above target pre-exercise serum potassium, calcium, parathyroid hormone (PTH), and LDL and non-HDL cholesterol saw significant reductions during the exercise period (5.82 to 5.39 mEq/L; 9.87 to 9.59 mg/dL; 855.10 to 615.21 pg/mL; 92.55 to 81.12 mg/dL; 119.34 to 108.79 mg/dL respectively). Those with below target pre-exercise serum albumin and HDL cholesterol levels saw significant increases during the exercise period (3.79 to 3.91 g/dL; 33.80 to 35.96 mg/dL respectively).
Conclusion: This study demonstrates the beneficial effects of IDE, particularly among patients with pre-exercise nutritional parameters OTR. Significant improvements were observed in serum potassium, calcium, PTH, albumin, and cholesterol levels. These findings contribute to the growing body of evidence supporting the role of exercise in improving nutritional parameters, metabolic bone disease, and cardiovascular outcomes in the HD population.

Body composition, physical exercise and muscle biology (P001-P010)

P002

Six-Month Feasibility and Clinical Effects of a Workflow-Integrated Treadmill Walking Program During Pre-Dialysis Waiting Time

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Objective: To evaluate the feasibility, safety, and six-month clinical effects of a workflow-integrated treadmill walking program performed during the pre-dialysis waiting period in maintenance hemodialysis (HD).
Method: This prospective single-case pilot study enrolled one patient undergoing maintenance HD. The participant performed supervised treadmill walking twice weekly for 15 min at an individually adjusted speed of 3.0–4.5 km/h during the pre-dialysis waiting period over six months. The intervention was incorporated into routine dialysis workflow without prolonging treatment time.The primary outcome was dialysis-day step count measured using a validated pedometer (YAMASA EX-500B). Secondary outcomes included physical performance (Short Physical Performance Battery; SPPB), muscle strength (knee extension and handgrip), fatigue (FACIT-Fatigue), nutritional status (Geriatric Nutritional Risk Index; GNRI), and skeletal muscle mass assessed by the psoas muscle index (PMI). PMI was measured twice at each time point and averaged for analysis. Assessments were conducted at baseline, 3, and 6 months. Adherence and adverse events were systematically documented.
Results: All 53 scheduled sessions were completed (100% adherence), with no intervention-related adverse events. Dialysis-day step counts increased from 3,302 at baseline to 5,219 at 3 months and were maintained at 4,760 at 6 months (+44% compared with baseline). Knee extension strength improved from 21.6 to 24.4 kg, accompanied by an increase in relative lower-limb strength (0.37 to 0.42). Handgrip strength was maintained (27.2 to 27.25 kg), and SPPB remained at the maximum score of 12. GNRI improved from 92.3 to 96.7. PMI increased from 3.31 to 3.53 cm^2/m^2 (+6.6%), indicating preservation of skeletal muscle mass. FACIT-Fatigue showed a modest improvement (42 to 44).
Conclusion: A short-duration, workflow-integrated treadmill walking program conducted during the pre-dialysis waiting period was feasible, safe, and sustainable over six months. Leveraging otherwise sedentary waiting periods may provide a practical strategy to mitigate physical inactivity and muscle decline in maintenance HD care. Larger-scale studies are warranted.

Body composition, physical exercise and muscle biology (P001-P010)

P003

Chrononutrition Indicators Are Associated With Nutritional Status Across Clinical Categories of Chronic Kidney Disease

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Objective: Chrononutrition (CN) examines the timing of food intake and its alignment with circadian rhythms, while chronotype reflects individual sleep–wake preferences. Both have been associated with metabolic health, but their relationship with nutritional status across clinical categories of chronic kidney disease (CKD) remains poorly characterized. The aim: To evaluate the association between chrononutrition indicators and nutritional status across clinical categories of CKD [CKD3–5, peritoneal dialysis (PD), hemodialysis (HD), and kidney transplant (KT)].
Method: An analytical cross-sectional study was conducted among 400 clinically stable adults with CKD (CKD3–5, HD, PD, and KT). Nutritional assessment included Subjective Global Assessment (SGA), appetite, gastrointestinal symptoms (GIS), anthropometry, and body composition by bioimpedance spectroscopy. Chronotype was assessed using the reduced Morningness–Eveningness Questionnaire. Chrononutrition indicators [meal frequency (MF), eating window, midpoint of intake (MPI), and eating jetlag (EJL)] were derived from two 24-hour dietary recalls. Associations were evaluated using linear regression adjusted for age and sex.
Results: SGA score 6(5-7), good appetite 142(35%), GIS score 10 (8-12), BMI 25 (21-29), PA 4.7± 1.2°, Chronotype score 17 (14-20), MF 3.5 (3-4), eating window 11.25 (9.75-12.25) hours, MPI time 14:45 (14:00-15:30) , EJL 45 (15-105) min. Chrononutrition indicators were associated with several nutritional outcomes across CKD categories. A later chronotype was associated with greater GIS (B=−0.27, p=0.01), lower appetite (B=−0.05, p=0.02) in HD, and with lower BMI (B=−0.39, p=0.02) in PD. Higher MF with higher SGA score (B=0.448, p=0.001) and with lower GIS (B=−1.33, p=0.004) in PD, while in CKD3–5 with higher BMI (B=2.34, p=0.01). A later MPI with higher GIS (B=0.78, p=0.007) and higher BMI (B=1.39, p=0.01) in KT. Greater EJL was associated with lower phase angle in HD (B=−0.232, p=0.02).
Conclusion: Chrononutrition indicators were associated with nutritional status with category-specific differences. These findings support the potential relevance of incorporating chrononutrition and circadian preference into the nutritional assessment of CKD patients.

Body composition, physical exercise and muscle biology (P001-P010)

P004

Prospective evaluation of anthropometric indices for predicting mortality, MACE and MARE in patients with chronic kidney disease

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Objective: In hemodialysis (HD) patients, higher BMI has paradoxically been associated with improved outcomes (“obesity paradox”). Whether this also applies to other anthropometric indices remains unclear. This study evaluated the prognostic value of conventional and alternative anthropometric measures for predicting all-cause mortality, 3-point major adverse cardiovascular events (3P-MACE), and 4-point major adverse renal events (4P-MARE) in patients with chronic kidney disease (CKD).
Method: In a prospective cohort including all CKD stages G1–G5 (n=581), outcomes were all-cause mortality, 3P-MACE (cardiovascular death, non-fatal stroke, non-fatal myocardial infarction), and 4P-MARE (incident CKD, CKD progression, initiation of kidney replacement therapy, renal death). Assessed indices included BMI, waist and hip circumference, waist-to-height ratio, waist-to-hip ratio (WHR), Hip Index, Abdominal Volume Index, Body Roundness Index, Relative Fat Mass, A Body Shape Index (ABSI), Conicity Index, estimated total body fat (eTBF), and weight-adjusted waist index (WWI). Cox regression analyses were adjusted for sex, age, systolic blood pressure, atherosclerotic disease, smoking status, LDL cholesterol, eGFR, CRP, and diabetes.
Results: Follow-up data were available for 507 participants (87.3%; median follow-up 7.4 years), of whom 86.0% had CKD and 41.2% were receiving HD. BMI showed a numerically inverse but non-significant association with all-cause mortality (adjusted HR 0.88). In contrast, several non-traditional anthropometric indices were significantly associated with increased mortality, including WHR (HR 1.44), ABSI (HR 1.37), Conicity Index (HR 1.41), eTBF (HR 1.42), and WWI (HR 1.45). Comparable associations were observed for 3P-MACE. For 4P-MARE, only WWI remained a significant predictor (HR 1.35). Subgroup analyses stratified by HD status showed particularly strong associations of WHR, ABSI, Conicity Index, eTBF, and WWI with mortality among HD patients.
Conclusion: While BMI showed no significant association with mortality, alternative anthropometric indices—particularly ABSI, Conicity Index, eTBF, and WWI—were strongly associated with adverse outcomes in CKD, including patients undergoing HD, suggesting improved risk stratification.

Body composition, physical exercise and muscle biology (P001-P010)

P005

Preliminary Effects of a Patient-Centered Physical Activity Intervention on Depressive Symptoms in Hemodialysis Patients: A Pilot and Feasibility Study

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Objective: Depression and physical inactivity are highly prevalent among patients receiving maintenance hemodialysis. Traditional intradialytic exercise programs often yield modest clinical benefits. We developed a patient-centered physical activity intervention (”Move More”) designed to increase overall movement through individualized goal setting and autonomy-based prescriptions.
Method: In this comparative effectiveness trial, 33 patients undergoing maintenance hemodialysis were randomized to either a patient centered “Move More” (MM) intervention (n=21) or standard intradialytic exercise (IDE) (n=12). Outcomes were assessed at baseline and 3 months and included depressive symptoms (PROMIS Short Form 8a), fatigue (SONG-HD), Short Physical Performance Battery (SPPB), and handgrip strength (HGS). Repeated measures ANOVA was used to assess group-by-group interaction effects.
Results: Our study demonstrated that the intervention was feasible, with 21 of 26 participants (81%) in the Move More group completing the study, compared to 12 of 20 participants (60%) in the IDE group. A significant group-by-time interaction was observed for depressive symptoms ($p = 0.008$, partial $\eta^2 = 0.208$). The Move More group demonstrated a clinically meaningful reduction in depressive symptoms (−3.29 points), whereas the intradialytic exercise group showed a small increase (+1.17 points) over 3 months. No significant *time* or *group -by- time* effects were observed for fatigue, SPPB, or handgrip strength (all $p > 0.05$).
Conclusion: At 3 months, a patient-centered physical activity intervention significantly improved depressive symptoms compared to standard intradialytic exercise. However, there were no other improvements in other outcomes. These preliminary findings suggest that providing patients the autonomy to choose which types of physical activity they prefer to engage in is a feasible approach to increasing their physical activity and it may provide important psychological benefits in HD patients. However, additional studies with larger samples are needed to further assess the efficacy of the intervention.

Body composition, physical exercise and muscle biology (P001-P010)

P006

Validity and agreement of bioelectrical impedance equations against dual energy x-ray absorptiometry for muscle mass assessment in patients on hemodialysis

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Objective: Low muscle mass is a common condition in patients on hemodialysis (HD) and bioelectrical impedance analysis (BIA) based predictive equations have been proposed as an alternative to dual energy x-ray absorptiometry (DXA) for estimating muscle mass. This study aimed to compare six BIA-based prediction equations with DXA as the reference method for estimating skeletal muscle mass (SMM) and appendicular skeletal muscle mass (ASMM) in patients undergoing HD and to evaluate the agreement and accuracy of these equations to determine muscle mass.
Method: Cross-sectional study in a single nephrology unit, including adults with chronic kidney disease on HD for at least 3 months. Age, dialysis vintage in months, presence of diabetes and hypertension, body composition by BIA and DXA were collected after the second HD session of the week. The accuracy of six prediction equations (Janssen, Barbosa-Silva, Kyle, Lin, Macdonald and Sergi) for estimating SMM and ASMM was tested with DXA as the reference. Low muscle mass was defined according to SMM/ASMM cutoffs values proposed for the European Working Group on Sarcopenia in Older People 2019. Agreement was assessed using intraclass correlation coefficients (ICC), Bland-Altman analysis and kappa statistics. Receiver Operating Characteristic (ROC) curves used to determine the accuracy.
Results: The sample consisted of 57 participants, age 52±13 years, 32 (56%) male, median dialysis vintage 14 (IQR 4-40) months, 17 (30%) had diabetes and 48 (84%) had hypertension. The best performance was observed for the equations from Lin (ICC = 0.954), Sergi (ICC = 0.949) and Kyle (ICC= 0.949). Kappa values ranged from moderate to substantial agreement, with the Lin equation showing the highest agreement (κ = 0.734). For the diagnoses of low muscle mass, the Lin equation demonstrated good accuracy (AUC = 0.794, 95% CI 0.68-0.91), with 68,4% sensitivity and 89.5% specificity.
Conclusion: The Lin equation provided the most accurate and reproducible estimates of muscle mass compared with DXA and showed good diagnostic performance for identifying low muscle mass in patients on HD.

Body composition, physical exercise and muscle biology (P001-P010)

P007

Impact of interdialytic exercise training on miR-30b in Hemodialysis: A Longitudinal Case-Control Study

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Objective: Physical exercise (PE) benefits patients undergoing hemodialysis (HD). MicroRNAs (miRNAs) have recently emerged as potential mediators of PE benefits in healthy individuals; however, data in HD patients are lacking. This prospective, longitudinal, case–control study compared expression of miR-30b, a regulator of osteogenic commitment in endothelial progenitor cells, between HD patients enrolled in an interdialytic exercise program (exercise group, ExG) and a control group (CG).
Method: Under the supervision of an exercise specialist, ExG participants completed a 3-month structured interdialytic program consisting of daily 10-minute sessions of low-intensity walking and/or resistance exercises performed at home or in the dialysis center. Blood was collected at baseline and at the 6-month follow-up for miRNA analysis. miRNAs were extracted from serum using the miRNeasy Serum/Plasma Advanced Kit. miR-30b expression was compared using two-way ANOVA with Sidak post hoc tests; $p<0.05$ was considered statistically significant.
Results: Seventeen patients were enrolled (ExG n=12; CG n=5). At baseline, ExG patients were younger (62±4 vs 68±10 years) and had a shorter dialysis vintage (2±1 vs 4±2 years). Hypertension and dyslipidemia were common in both groups, diabetes prevalence was similar (40% vs 50%). Hemoglobin levels and other routine chemistry parameters were overall comparable. Baseline miR-30b expression did not differ between groups. At 6 months, within-group analysis showed a significant upregulation of miR-30b in all patients in the ExG ($p<0.03$), whereas the between-group difference at 6 months was not statistically significant.
Conclusion: In this preliminary cohort, interdialytic PE was associated with upregulation of circulating miR-30b in HD patients, although between-group differences versus controls were not significant. Given reported roles of miR-30b in limiting vascular smooth muscle cell proliferation and osteogenic differentiation of mesenchymal stem cells, this modulation may be relevant to vascular calcification. Larger, adequately powered studies are warranted.

Body composition, physical exercise and muscle biology (P001-P010)

P008

A Phase Angle Cutoff of 4° Identifies Increased Mortality Risk in Advanced Chronic Kidney Disease

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Objective: Chronic kidney disease (CKD) is associated with alterations in body composition linked to adverse outcomes. Although these can be assessed by bioimpedance, their evaluation remains challenging, as most derived parameters rely on equations developed in healthy populations and may be inaccurate in altered hydration states. Phase angle is a direct bioimpedance parameter independent of such equations that may better reflect cellular integrity and hydration. While its prognostic value has been described in CKD, clinically useful cutoff values remain unclear. This study aimed to evaluate the prognostic value of phase angle at 50 kHz in patients with non-dialysis advanced CKD and to identify a cutoff associated with mortality risk.

Method: This retrospective cohort study included patients with advanced CKD not receiving dialysis. Phase angle at 50 kHz was obtained at baseline. The primary outcome was all-cause mortality. ROC analysis was used to determine the optimal cutoff, and survival was assessed using Kaplan–Meier curves and Cox models adjusted for relevant variables, with prespecified subgroup analyses.

Results: A total of 228 patients with CKD stages 4–5 (mean eGFR 13.1 ± 2.8 mL/min/1.73 m²; mean age 74.6 ± 14.0 years, 61.8% male) were included. Mean phase angle was 5.12 ± 0.85°. During a median follow-up of 11.7 months (IQR 4.8–19.5), 51 patients (22.4%) died. ROC analysis showed moderate discrimination (AUC 0.75, 95% CI 0.676–0.825; $p < 0.001$), with an optimal cutoff of 4° (sensitivity 66.7%, specificity 74.6%).

Crude mortality was higher in patients with phase angle <4° (44.7% vs 11.2%; log-rank $p < 0.001$). In Cox models, phase angle <4° remained independently associated with mortality (HR 2.56, 95% CI 1.28–5.28; $p = 0.008$), with consistent findings across subgroups.

Conclusion: A phase angle cutoff of 4° identifies patients with stage 4–5 CKD at a significantly higher risk of mortality, independently of clinical, laboratory, and body composition parameters. Phase angle is a simple and clinically relevant nutritional parameter whose incorporation into routine clinical practice may help improve risk stratification and guide a more individualized nutritional approach in people with advanced CKD.

Body composition, physical exercise and muscle biology (P001-P010)

P009

Correlation Between Physical Examination and Rectus Femoris Ultrasound for Muscle Mass Assessment in Dialysis Patients

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Objective: Muscle wasting is prevalent in dialysis patients and carries significant prognostic implications. The GLIM consensus endorses physical examination as an accessible alternative for muscle mass assessment when technology-based methods are unavailable. Ultrasound (US) of the rectus femoris (RF) has emerged as a validated bedside tool for evaluating muscle mass. This study aimed to assess the correlation between physical examination grading and RF muscle thickness measured by US in patients undergoing chronic dialysis.
Method: A cross-sectional study was conducted in 20 dialysis patients (hemodialysis and peritoneal dialysis). Physical examination was performed by a trained dietitian and graded on a 3-point ordinal scale: grade 1 (normal muscle mass), grade 2 (moderately reduced), and grade 3 (severely reduced). To minimize observer bias, physical examination was completed prior to and independently of US measurement. RF muscle thickness was subsequently measured by US and classified as normal or reduced using sex-specific thresholds: ≥11.45 mm for males and ≥9.40 mm for females*. The association between the binary US classification and physical examination grades was evaluated using the Fisher–Freeman–Halton exact test and tested for ordinal trend.
*Vidal-Casariego et al. Sex-specific ultrasound thresholds of rectus femoris assessment in disease-related malnutrition: A cross-sectional analysis. Nutrition. 2026 Feb
Results: A significant association was observed between RF ultrasound classification and physical examination grading (Fisher–Freeman–Halton exact test, $p = 0.026$). A significant ordinal trend was identified across increasing examination grades ($p = 0.014$), with a strong effect size (Cramér's $V = 0.612$), indicating a clinically meaningful relationship between the two assessment methods.
Conclusion: Physical examination represents a practical tool for muscle mass assessment in dialysis patients when technology-based methods such as ultrasound are unavailable. The strong and significant correlation observed with RF ultrasound supports its clinical utility, consistent with GLIM guidance. Larger validation studies are warranted to confirm these results.

Body composition, physical exercise and muscle biology (P001-P010)

P010

Study of Functionality and its Relationship with Myocytokines, Muscle Strength, and the Nutrition-Inflammation Binomial in People on Hemodialysis

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Objective: To study functionality and its correlation with myocytokines and nutritional parameters in people on hemodialysis (HD)

Method: Cross-sectional, prospective,multicenter study in 79HD-people. We evaluated demographic-parameters, nutritional-scales (VGSm,MIS,ONSD), dynamometry,,albumin,prealbumin,CRP Lymphocytes,IL6,TNF-alpha,IGF1(BP1 andBP3), myostatin,LIF,body composition(BIVA), functional parameters: gait speed),6-minute walking test (6MWT),Squats(SST5),TUG. We established correlations between parameters

Results: 79 patients,xage 62.47±15.23, 22.1% diabetes mellitus, 60.8% men. HD-Schemes: standard HD, daily HD, and online-HDF

Gait Speed : Cut-Off 0,8m/sec. Xgait-Speed 1.13±0.30m/sec, with a difference according gender(p 0.023). Inverse correlation:age, p<0.001. No with HD-schemes, vascular-access, or DM

- Gait-speed >0.8(65.8%)
- Correlations: myocytokines. Direct: myostatin p0.05 and indirect: IGFBP1p0.05,IL6 p0.05, LIFp0.01; body-composition by BIVA: phase A p0.05, %AIC p0.01, %MMGp0.06, %MMp0.05 and inverse: AECp0.01, %MGp0.05. Nutrition-scales and dynamometries: and inverse with VGSm,dynamometry direst

6MWT(6-minute walking test). Cut-Offpoint400 m; mean=406.58±106m, with difference according genderp<0.05. No differences:diabetes mellitus,vascular access,HD scheme,or biochemical-parameters

- xAge significant-Inverse correlation
- Significant difference in IGFP3 and IL6
- Body composition (BIVA) direct: %FATmass,%fat mass, %muscle-mass, p<0.05

STS5 (5 squats).Cut-Offpoint-12.5seconds

xSTS5 16.68±9.65 sec no differences according gender,DM,vascular access, or HDscheme

- Direct correlation with age
- Body-composition (BIVA)direct %EBW, Na/K,inverse:%FATmassp0.01, %BCMp0.01,Phase-A0.05
- Direct MIS(p0.025), indirect:dynamometries
- Myocytokines: direct: IGBP1, BP1/BP3ratio,LIF,TNF-alphap0.01 and inverse IGFBP3

TUG. (Timed Up and Go). No differences according gender or DM.

- Correlation diect with age,indirectprealbuminp0.01
- Direct LIFand TNFp0.01. Inverse: IGF1p0.05
- Body-composition(BIVA): direct Na/K, EBW(p0.01), inverse: Phase-A ,%BCM,%FATmass,%MM(p0.01)

Conclusion: We highlight the importance of myocytokines in functionality and body composition in Hemodialysis people

Cardiovascular risk and complications (P011-P015)

P011

Prognostic Significance of the C-Reactive Protein-Triglyceride-Glucose Index for All-Cause and Cardiovascular Mortality in Peritoneal Dialysis: A Multicenter Cohort Study

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Objective: Chronic low-grade inflammation and insulin resistance (IR) frequently coexist in peritoneal dialysis (PD) and may drive excess mortality. The C-reactive protein–triglyceride–glucose index (CTI) integrates inflammatory (CRP) and metabolic (TyG) signals, but its prognostic value in PD is unknown.
Method: In a multicenter cohort of 2,240 Chinese PD patients, CTI was assessed 3 months after PD initiation and dichotomized at the median (5.09). Mortality outcomes were tracked through May 31, 2023. Analyses used Kaplan–Meier, Cox models (with and without propensity score matching [PSM]), prespecified subgroup analyses (sex, age, BMI, diabetes, hypertension), and restricted cubic splines (RCS) for dose–response.
Results: There were 634 deaths (314 CVD). Cox regression analysis showed that a higher CTI was an independent risk factor for all-cause mortality and CVD mortality in PD patients. After full adjustment, compared with patients with CTI <5.09, those with CTI ≥5.09 had a 34% higher all-cause mortality risk (HR 1.34, 95% CI 1.07–1.68) and a 39% higher CVD mortality risk (HR 1.39, 95% CI 1.01–1.93). RCS analysis revealed an approximately linear relationship between increased CTI and the elevated risk of both adverse clinical outcomes (P for nonlinearity >0.05). The positive association between CTI and mortality was observed in both diabetic and non-diabetic subgroups (e.g., in diabetic patients: all-cause mortality HR 1.72, 95% CI 1.13–2.61; CVD mortality HR 2.11, 95% CI 1.21–3.68), with no statistically significant interaction by diabetes status (P for interaction > 0.05).
Conclusion: CTI independently and approximately linearly predicts all-cause and CVD mortality in PD, with consistent associations irrespective of diabetes status. It provides only modest incremental predictive value beyond hs-CRP and TyG, but its simplicity and cost-effectiveness support its potential use as a supplementary marker for risk stratification and individualized PD care.

Cardiovascular risk and complications (P011-P015)

P012

Plasma Aldosterone Levels in Chronic Hemodialysis Patients: A Potential Marker of Cardiovascular Morbility and Mortality Risk

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The adrenal steroid Aldosterone (Aldo) is a key player in the control of Na+ balance and thus of extracellular fluid volume (ECFV) in healthy individuals. Dysregulated activation of the renin-angiotensin-aldosteronesterone system (RAAS) is responsible of fluid overload and/or hypertension in a wide array of disorders involving the heart and the kidney, including chronic kidney disease (CKD). Once CKD progresses to endstage renal failure, hemodialysis (HD) is critical to regain ECFV balances, but little is known about circulating levels of Aldo and the role of this mineralocorticoid in patients on regular renal replacement therapy (RRT). Therefore, we screened a pool of 18 HD patients undergoing renal replacement treatment (RRT) at our Centre for plasma Aldo levels, found to be quite variable from 31 to 1000 pg/mL before the start of the HD session, despite homogeneous blood pressure values, and a steady ECFV/total body water (TBW) ratio of 51.5 ± 1.5%. Aldo levels were markedly reduced in a subgroup of 6 patients at the end of the HD session by 48.1 ± 6.2 %, contrary to what could be expected, given the relatively rapid decrease of ECFV due to ultrafiltration of an average of 2.7 ± 0.5 L over 4 hrs. Since Aldo levels respond to shifts of ECFV and adrenal steroid receptors are expressed by a variety of organs and tissues, most notably cardiomyocytes and cells of the vascular walls, responses to Aldo are likely involved in remodelling of the cardiovascular system over time in HD. The beneficial effects of aldosteronesterone antagonists on cardiac morbility and mortality of patients with CHF could therefore extend to this subset of patients with endstage CKD, known to be quite vulnerable to hypertension and cardiovascular disease.

Cardiovascular risk and complications (P011-P015)

P013

Revisiting Blood Pressure Phenotypes in Hemodialysis Patients: Insights from a Home Blood Pressure-Based Approach

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Objective: Dialysis-unit blood pressure (BP) incompletely reflects true BP burden in hemodialysis (HD), yet the clinical significance of BP phenotypes—particularly white-coat and masked patterns—remains uncertain. We examined associations between BP phenotypes defined by dialysis-unit and home BP and cardiac and vascular remodeling in maintenance HD.
Method: In 217 adults receiving thrice-weekly HD, BP phenotypes were classified using pre-dialysis BP (≥140/90 mmHg) and standardized 7-day home BP (≥135/85 mmHg) as sustained normotension (SNT), white-coat phenotype (WCH), masked hypertension (MHT), and sustained hypertension (SHT). Primary outcomes were left ventricular hypertrophy (LVH) and arterial stiffness (brachial–ankle pulse wave velocity ≥1800 cm·s?¹). Multivariable logistic regression adjusted for demographic and dialysis-specific covariates, with sensitivity analyses using alternative BP thresholds.
Results: Phenotype distribution was SNT 29.5%, WCH 24.0%, MHT 6.9%, and SHT 39.6%; nearly one-third of patients were misclassified by dialysis-unit BP alone. Compared with SNT, SHT was independently associated with LVH and arterial stiffness, while MHT showed the strongest association with arterial stiffness. WCH was not associated with LVH overall but was associated with higher arterial stiffness. In stratified analyses, arterial stiffness increased across phenotypes regardless of treatment status, whereas excess LVH in WCH was observed only among untreated patients.
Conclusion: Home BP–based phenotyping reveals substantial misclassification by dialysis-unit BP and distinct patterns of cardiac and vascular remodeling in HD. While sustained and masked hypertension confer the greatest structural burden, the white-coat phenotype, particularly when untreated, is not entirely benign, highlighting the value of standardized home BP monitoring in dialysis care.

Cardiovascular risk and complications (P011-P015)

P014

Anthropometric Assessment and Central Obesity Indices in Kidney Transplant Recipients

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Objective: This study aimed to evaluate anthropometric characteristics and indices of body composition and central obesity in adult kidney transplant recipients, with particular emphasis on age- and sex-related differences.
Method: A cross-sectional study was conducted in 71 adult kidney transplant recipients. Standard anthropometric measurements included body weight, height, and circumferences of the waist, hips, mid-upper arm, and calf. Based on these measurements, multiple indices were calculated, including BMI, waist-to-hip ratio (WHR), waist-to-height ratio (WHtR), waist-to-height^0.5 ratio (WHt^0.5R), A Body Shape Index (ABSI), Abdominal Volume Index (AVI), Body Roundness Index (BRI), Conicity Index (CI), Body Adiposity Index (BAI), and Reciprocal Ponderal Index (RPI). Associations with age, sex, and kidney graft function were analyzed.
Results: Mean BMI was 24.9 ± 4.34 kg/m², corresponding to the upper limit of the normal range; however, 46.5% of participants were classified as overweight or obese. Despite relatively normal BMI values, a high prevalence of central adiposity was identified using WHtR, WHR, CI, and AVI. Age was positively correlated with indices of visceral fat accumulation, including ABSI, AVI, WHtR, and CI ($p < 0.01$ for all). Sex-based differences were observed, with men presenting higher indices of central obesity (ABSI, AVI, CI), while women exhibited higher indices of overall adiposity (BAI, BRI). No significant association was found between BMI and estimated glomerular filtration rate.
Conclusion: Kidney transplant recipients frequently present with unfavorable body fat distribution that is not adequately reflected by BMI alone. Anthropometric indices of central obesity reveal age- and sex-related differences and may provide clinically relevant information for identifying patients at increased metabolic risk. Comprehensive anthropometric assessment should be incorporated into routine post-transplant care to improve long-term risk stratification.

Cardiovascular risk and complications (P011-P015)

P015

Sucralose consumption impairs renal function, increases lipid peroxidation, and modulates NLRP3 inflammasome and Nrf2-Keap1 pathways in a preclinical chronic kidney disease model

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Objective: The increasing consumption of ultra-processed foods has expanded exposure to non-nutritive sweeteners such as sucralose. Given the elevated cardiovascular risk and oxidative stress in chronic kidney disease (CKD), and the limited understanding of sucralose effects on cardiorenal outcomes, this study investigated the impact of chronic sucralose intake on renal function, oxidative stress, and cardiac inflammation in an experimental CKD model.
Method: Male *Wistar* rats were allocated to Sham, 5/6 nephrectomy (Nx), or Nx with sucralose (5 or 15 mg/kg/day) in the drinking water for 8 weeks. Renal function markers were evaluated in serum. Oxidative stress was assessed by measuring thiobarbituric acid reactive substances (TBARS) and protein carbonylation in kidney and cardiac tissues. Cardiac gene expression of *NOD-like receptor family, pyrin domain containing 3 (Nlrp3), Kelch-like ECH-associated protein 1 (Keap1),* and *nuclear factor erythroid 2–related factor 2 (Nrf2)* was quantified using real-time PCR.
Results: Serum urea levels were increased in the NxS5 compared with Nx (82.50±16.55 vs 67.63±5.97 mg/dL; p=0.0160). Moreover, serum creatinine was higher in NxS5 compared with Nx (0.85±0.18 vs 0.68±0.09 mg/dL; p=0.0461), accompanied by a reduction in estimated glomerular filtration rate (1103±298.7 vs 1604±320.1 µL/min; p=0.0251). Both sucralose doses increased renal lipid peroxidation (0.4±0.1 vs. 0.6±0.05 and 0.6±0.1 nmol/mg protein; p=0.029). A significant reduction in heart protein carbonylation was observed in NxS15 compared with Nx (4.23±4.14 vs 12.64±3.95 nM/mg; p=0.0090). Higher expression levels of *Nlrp3* (7.164±5.035 vs 1.985±0.9445 and 2.980±1.455; p=0.0008) and *Keap1* (6.969±4.209 vs 2.763±1.530 and 3.095±1.327; p=0.0004) were observed in the NxS5 compared to the Nx and NxS15, along with an increased expression of *Nrf2* in NxS5 compared to the Nx (3.541±2.068 vs 1.575±0.8002; p=0.0242).
Conclusion: Sucralose, particularly at lower dose, impaired renal function and increased lipid peroxidation, with an increase of *NLRP3*, *Nrf2,* and *Keap1* expression, suggesting inflammatory activation and adaptive redox response.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P016

A study of the prevalence of constipation and commonly associated diet and lifestyle factors in an adult Peritoneal Dialysis (PD) population

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Objective: Constipation is a prevalent issue among chronic kidney disease (CKD) patients. In addition to constipation prevention, higher fibre consumption has been reported to enhance growth of beneficial gut microbiota, improve the gut barrier, decrease inflammation, increase intestinal transit time and promote uremic toxin excretion from the gut. Overzealous restriction of phosphate and potassium can contribute to reduced fibre intake in CKD. The aim of this project was to assess the incidence of self reported constipation in an adult PD cohort and evaluate known contributing factors of physical activity, fluid and fibre intake.
Method: Patients >18 years, on PD >3 months (n=38) were invited to complete a 3 day food and fluid diary and 3 questionnaires A) Bristol stool chart and ROME III criteria, B) international physical activity IPAQ and C) a fibre food frequency tool (FFT). The FFT was adapted, with permission, from a validated Dutch “18 item FibreScreen”. It was modified to include local dietary patterns and the scoring system utilised UK/Irish food composition data.
Results: 26.3% of patients reported constipation. No significant correlation was seen between reported constipation and physical activity level, fibre intake or mean fluid intake. Mean fibre intake (16.7 ± 5.8g) was well below the recommended 25g/day (European Food Safety Authority) and below the national average of 18g/day. 79% fell in the low fibre range (≥15% below target) with more young people (24-64 years) falling within this category (p=0.01). 58% reported less than the minimum recommended 2 fruit and ≤2 serving spoons of vegetables daily. 45% feel in the low physical activity range.
Conclusion: Constipation remains a common issue in this cohort. Despite advice low levels of physical activity and fibre intake persists. Although the FFT is not designed to measure absolute fibre intake it was reassuring to see a significant correlation between it and the food diaries (r=0.587, p=0.001). It appears to be a quick and reliable method of assessing fibre intake. Provides good insight into specific fibre sources and could be used as a screening tool for more targeted dietetic interventions, monitor change in dietary habits and promote improved adherence to this important element of the renal diet.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P017

Mindful Eating in the Era of Ultra-Processed Foods: Educating Dialysis Patients on Healthy Food Choices

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Objective: This study aims to assess dialysis patients knowledge of ultra-processed foods and explore factors influencing their consumption. Additionally, an educational iconography will be introduced to inform patients about the risks associated with these foods. A follow-up evaluation will determine whether increased awareness leads to improved clinical and nutritional outcomes, promoting healthier dietary choices.
Method: The study assessed data distribution using the Kolmogorov-Smirnov test and graphical analysis, reporting results based on variable type. A Random forest model was applied to ultra-processed foods and beverages, with 70% of the sample used for training and 30% for testing. Additionally, general eating habits were analyzed, including daily food consumption and patients knowledge of optimal preparation and cooking methods.
Results: The study analyzed 38 dialysis patients (median age 67, BMI 24), with 32% women, 24% smokers, 16% diabetics, and 5% with gastrointestinal diseases. Less than 30% cooked at home, and only 7 followed a specific diet, mostly based on non-medical advice. Awareness of ultra-processed foods was low, with only 5 patients recognizing them and 2 understanding additives. Biochemical markers varied, with potassium at 5.25 ± 1.3, phosphate at 5.7 ± 1.15, and hemoglobin at 10.2 [9.3-10.6]. Ultra-processed food consumption varied, with 24% consuming them rarely and some up to 11 times daily, while 13 avoided ultra-processed beverages, 23 consumed them rarely, and 3 daily.
Conclusion: Despite the small sample, the study suggests that nutrition education on ultra-processed foods and beverages may improve quality of life and help manage complications in dialysis patients. Larger studies are needed to confirm these findings and develop targeted nutritional strategies for this vulnerable population.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P018

Intracellular Lipid Dysregulation and Podocyte Lipotoxicity: Nutritional and Renal Implications

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Objective: Nutrition is increasingly recognized as a key modulator of kidney metabolic stress and disease progression. Podocyte lipid dysregulations is a cell-intrinsic process that drives glomerular injury independently of circulating cholesterol or triglyceride levels. Altered intracellular handling of free cholesterol due to impaired ABCA1-mediated efflux, ceramide accumulation, and reduced mitochondrial fatty acid oxidation contributes to podocyte dysfunction and chronic kidney disease. Although dysregulation of these mechanisms occurs within podocytes and do not require dyslipidemia, nutritional factors exert significant modulatory effects on podocyte lipid metabolism. Dietary fatty acids influence membrane composition and lipid-raft associated signaling; omega-3 polyunsaturated fats improve mitochondrial efficiency and reduce ceramide synthesis, whereas saturated fats promote inflammatory and lipotoxic pathways. Bioactive nutrients such as polyphenols and unsaturated lipids activate nutrient-sensing pathways, including AMPK and PPARs, thereby enhancing fatty acid oxidation, reducing lipid accumulation, and supporting metabolic resilience within podocytes. Moreover, whole dietary patterns rich in unsaturated fats and anti-inflammatory components may mitigate lipid-driven podocyte injury, even in individuals without systemic dyslipidemia.
Conclusion: This review integrates mechanistic evidence on podocyte lipotoxicity with current knowledge on how specific nutrients and dietary patterns modulate lipid pathways. Understanding these interactions may help identify nutritional targets for preventing or attenuating glomerular damage.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P019

Effects of long-term weight loss via low-carbohydrate diets on renal function in obese rats

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Objective: Low-carbohydrate (LC) diets are a popular strategy for weight loss. When daily carbohydrate intake is below 50 grams, the body shifts to fat oxidation, producing ketone bodies for energy. However, the long-term impact of LC-induced weight loss on renal health remains insufficiently explored.
Method: Obesity was induced in rats using a high-fat, high-sucrose diet for 16 weeks. Subsequently, an 8-week weight loss intervention was conducted using three dietary protocols: a normal diet control (HC), a low-carbohydrate low-fat diet (LCLF; 79% energy from fat), and a low-carbohydrate high-fat diet (LCHF; 93% energy from fat). Blood and kidney tissues were collected for analysis post-sacrifice.
Results: Both LCLF and LCHF groups achieved significant weight reduction in obese rats. Serum ketone levels in the LCHF group were significantly higher than in the HC and LCLF groups. In the renal cortex, the LCLF intervention significantly increased the expression of vascular cell adhesion molecule-1 (VCAM-1), intercellular adhesion molecule-1 (ICAM-1), and NLRP3 inflammasome proteins compared to other groups. In the renal medulla, both LCLF and LCHF diets led to increased expression of VCAM-1, ICAM-1, and the fibrosis marker alpha-smooth muscle actin (α-SMA).
Conclusion: Although low-carbohydrate diets with varying fat ratios effectively reduce body weight in obese rats, they may exert detrimental effects on renal health by promoting inflammation and fibrosis markers.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P020
Plant-Based Foods and Fiber Intake in Hemodialysis: Are Potassium and Phosphorus Still a Barrier?

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Objective: Dietary fiber intake is associated with metabolic and nutritional benefits, and fiber-rich plant-based foods are important sources of antioxidant micronutrients. In hemodialysis (HD) patients, fiber intake is often limited due to concerns about potassium and phosphorus. This study evaluated associations between dietary fiber and plant-based food intake and nutritional, biochemical, and clinical outcomes in HD patients.
Method: This multicenter cross-sectional study included 582 HD patients from 37 dialysis centers in Portugal. Clinical, body composition and nutritional risk (Malnutrition Screening Tool, MST) data were collected. Dietary intake was assessed using a Food Frequency Questionnaire. Patients were categorized according to fiber intake (<25 vs. ≥25 g/day). A $p<0.05$ was considered statistically significant.
Results: Low fiber intake was observed in 72.2% of patients. Plant-based foods were positively correlated with total fiber intake. Higher fiber intake was strongly associated with higher magnesium, iron, folate, selenium, zinc and vitamin C intake, while no association observed with serum potassium or phosphorus. Vegetable and fruit intake were positively associated with vitamin C, folate and magnesium, while whole grains were associated with magnesium, manganese and selenium intake. Legume consumption was associated with folate, vitamin B6, magnesium and zinc intake. Soup and nut consumption also correlated with the intake of these vitamins and minerals, but to a lesser extent. Longer HD vintage was associated with lower fiber intake and mean HD vintage differed significantly between fiber intake groups, whereas age did not. Age, diabetes, male gender and total energy intake remained independently and significantly associated with an adequate fiber intake in the adjusted model. Higher MST scores were weakly and negatively correlated with fiber intake.
Conclusion: In HD patients, higher dietary fiber consumption is associated with improved micronutrient intake without adverse effects on serum potassium or phosphorus. Lower fiber intake was observed in patients with longer HD vintage and higher nutritional risk, highlighting the need for individualized strategies to safely promote fiber-rich, plant-based foods in this population.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P021

Implementation evaluation of the Kidney Healthy Eating and Lifestyle Program (Kidney-HELP) within a local Kidney Health Service

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Objective: The Self-paced Kidney Healthy Eating and Lifestyle Program (Kidney-HELP) was developed to improve diet quality in adults with chronic kidney disease (CKD). A recent study found the program to be feasible and acceptable, which led to the implementation of Kidney-HELP within a local kidney health service. This study aimed to evaluate the first year of Kidney-HELP implementation using the RE-AIM framework.
Method: Adults with CKD (eGFR <60mL/min/1.73m^2 and/or uACR >3mg/mmol) referred to a kidney dietitian for weight management were offered two program options: Kidney-HELP or a very low-calorie diet and exercise program. Patients selecting Kidney-HELP received a 7-week self-paced workbook and activity book (digital and print), weekly check-in surveys, tailored SMS support and monthly dietitian appointments for 3 months. Outcomes included reach, effectiveness, adoption and implementation (program adherence and cost). Effectiveness measures included anthropometric measures, quality of life (EQ-5D-5L) and diet quality (Healthy Eating Screener).
Results: In 2025, 31 patients were referred for weight management, 15 (48%) chose Kidney-HELP and 11 (73%) commenced the program. Five of the eight participants (63%) completed Kidney-HELP and 3 participants are due to complete the program next month. Program adherence was 64%. The mean cost of delivering Kidney-HELP was $187.79 AUD per participant, offset by $14,149.11 AUD in program-generated revenue, resulting in a net revenue of $1098.49AUD per participant. Participants improved quality of life (Utility median difference: 0.039, 95%CI 0.000, 0.078; VAS median difference: 7.0, 95%CI 5.0, 10.0) and diet quality scores (mean change: 4.6, 95%CI 0.8, 6.7). There were no changes in anthropometric measures.
Conclusion: Self-paced Kidney-HELP showed promising improvements in quality of life and diet quality during its first year of implementation, however effectiveness outcomes should be interpreted cautiously due to small sample size. Adoption was low and few referrals were received. Reach among those referred was favourable and program revenue generated per participant supports ongoing delivery within the kidney health service. Larger-scale evaluation with extended follow-up is needed to confirm clinical and economic benefits.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P022

Harmonizing Dietary Safety Education After Kidney Transplantation: A National Consensus Process

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Objective: Dietary counseling is a key component of post-kidney transplantation care. However, substantial variability exists across centers regarding food safety instructions, dietary restrictions, and long-term nutritional advice. This heterogeneity may lead to inconsistent messages and suboptimal patient safety. The French-speaking Society for Transplantation (SFT) initiated a national effort to harmonize dietary educational practices after renal transplantation.
Method: A structured national consensus process was conducted to consolidate food safety and nutritional guidance for adult kidney transplant recipients. First, a survey among nephrology teams and dietitians identified major inconsistencies in post-transplant dietary recommendations and limited access to evidence-based guidance. Second, a targeted literature review addressed infectious foodborne risks, drug–food interactions, nutritional requirements, and cardiovascular prevention in transplant recipients. Third, a core writing group (n = 3; 1 nephrologist and 2 dietitians) synthesized the evidence and drafted consensus-based recommendations. The document was then reviewed, discussed, and validated through iterative exchanges within a multidisciplinary, multicenter expert committee.
Results: The resulting national guidance addresses five key domains: (1) early postoperative nutritional restoration and maintenance, (2) food–drug interactions and metabolic effects, (3) food hygiene and infectious risk prevention, (4) cardiovascular risk-oriented balanced diet reinforcement, and (5) long-term dietary follow-up after kidney transplantation. The document aims to harmonize food safety messages, standardize educational practices, and support multidisciplinary care teams.
Conclusion: Using a pragmatic, multidisciplinary consensus-building approach, we developed the first national reference designed to harmonize dietary safety and nutrition education after kidney transplantation. The document was presented at the SFT congress in December 2025 during a joint patient–caregiver roundtable. Future updates will address emerging topics such as pre- and probiotics and microbiome-related issues.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P023

Consumption of healthy food groups among patients on peritoneal dialysis and comparisons with the general population in Brazil: results from the multicenter QUALI-DIET-PD study

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Objective: Brazil is a large country with marked regional differences in dietary patterns. We aimed to compare the intake of selected food groups among patients on peritoneal dialysis (PD) in Brazil and to compare their intake with that of the general population in respective states.
Method: Cross-sectional study including prevalent patients on PD from four of the five Brazilian geographic regions (QUALI-DIET-PD). Participants answered a food frequency questionnaire used in the national epidemiological surveillance system. The frequency of intake of four food groups was assessed (beans, raw vegetables, cooked vegetables, and fruits), and the prevalence of consumption ≥5 times per week were compared between patients across regions and the general population, according to VIGITEL 2023 data for the respective states. Multivariable regression models were adjusted for age, sex, and educational level.
Results: We included 360 patients (52% male; age 60 [45–70] years; 44% with <9 years of education). In adjusted analyses, the frequency of intake of all food groups differed across regions ($p<0.01$). The prevalence of consumption ≥5 times/week of beans was higher in the Southeast (71%) and lower in the South (39%). Raw vegetable intake was higher in the Southeast (57%) and lower in the Northeast (16%). Cooked vegetables and fruits were more frequently consumed in the Central-West (55% and 65%, respectively) and less frequently in the Northeast (17% and 42%, respectively). When compared with the general population, patients in the Southeast had a higher intake of beans (71% vs. 55%), and raw vegetables (56% vs. 45%). In the South, patients had a higher frequency of cooked vegetables (46% vs. 27%). In the Central-West, patients had higher intake of raw vegetables (53% vs. 43%), cooked vegetables (55% vs. 28%), and fruits (65% vs. 54%) ($p<0.01$). No differences were found between patients in the Northeast with the general population in the same region.
Conclusion: There are marked regional differences in the intake food groups among patients on PD in Brazil. In several regions, patients reported a higher frequency of consumption of selected healthy food groups compared with the general population. These findings may inform region-specific nutritional counseling strategies.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P024

Is diet quality better in dialysis day? EAT-HDF study

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Objective: Although nutritional management is central to hemodialysis care, little is known about differences in diet quality between dialysis and non-dialysis days, particularly when evaluated according to food processing. The aim of this study was to compare diet quality on dialysis and non-dialysis days in patients undergoing hemodiafiltration (HDF).
Method: This cross-sectional multicenter study included eight HDF clinics. Diet quality was assessed using the NOVA classification questionnaire, comprising 33 in natura/minimally processed foods (NAT) and 23 ultra-processed foods (UP). Scores were calculated as the sum of foods consumed on the previous day (dialysis and non-dialysis), ranging from 0–33 for NAT and 0–23 for UP.
Results: Among 244 patients (53.8±14.9 years; 55.7% men; dialysis vintage 48 [27–82] months), 70% underwent ≥4 weekly sessions. Median NAT score was higher on dialysis days than on non-dialysis days (5 [3–6] vs 4 [3–6]; p=0.001), whereas UP scores did not differ (3 [1–4] vs 3 [2–4]; p=0.45). On dialysis days, 40% of patients were in the highest NAT tertile (>5) compared with 29% on non-dialysis days (p=0.001). Consumption of ≥3 fruits was more frequent on dialysis days (24% vs 15%; p<0.001). No differences were observed for other NAT groups, including vegetables, legumes, nuts, and whole grains. Approximately 49% of patients on both days consumed fewer than two UP foods, and only 14% consumed more than four UP foods, with no difference between days.
Conclusion: Diet quality was better on dialysis days, mainly driven by higher fruit consumption, likely influenced by in-center food provision. UP food intake was low and similar on both days. However, the overall intake of NAT foods remained limited, suggesting that opportunities to improve diet quality extend beyond dialysis days.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P025

Halting cyst progression in ADPKD using ketone-based metabolic interventions - a case series

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Objective: Autosomal dominant polycystic kidney disease (ADPKD) is traditionally considered a genetically determined disorder with limited modifiable therapeutic options. Emerging preclinical and early clinical evidence suggests that ADPKD is metabolically responsive. We present long-term real-world outcomes from individuals with PKD1 implementing ketone-based metabolic interventions.
Method: This retrospective case series includes four adults with genetically confirmed PKD1 (3 male, 1 female; age 34–71) with longitudinal clinical data spanning 1–3 years. All four individuals received exogenous beta-hydroxybutyrate (BHB) supplementation and additionally implemented metabolic interventions (intermittent fasting and/or ketogenic nutrition) of varying intensity. Outcomes included estimated glomerular filtration rate (eGFR), total kidney volume (TKV), liver volume, Mayo Clinic imaging classification, metabolic biomarkers, and volumetric reanalysis using TRACEORG and 3D Slicer.
Results: Across all four PKD1 cases, structural and/or functional disease progression stabilized or slowed following initiation of ketone-based metabolic interventions. One individual demonstrated stable eGFR over 12 months, sustained nutritional ketosis, and reduction in TKV. Two additional patients showed stabilization or decline in kidney and liver volumes accompanied by stable kidney function. A fourth individual maintained stable eGFR and volumetric stability over two years with BHB supplementation and intermittend fasting. In multiple cases, imaging-based Mayo classification shifted toward a less severe trajectory. Lipid changes consistent with a lean-mass hyper-responder phenotype were observed in some individuals without evidence of coronary artery calcification.
Conclusion: This retrospective case series provides proof-of-concept that ketone-based metabolic interventions, including exogenous BHB supplementation with or without ketogenic nutrition and fasting, may attenuate structural and functional progression in genetically confirmed PKD1. Despite heterogeneity and absence of standardized protocols, the observed trends support the metabolic modifiability of ADPKD and warrant prospective controlled trials.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P026

Dietary supplementation with ketoanalogues in patients with chronic kidney disease: clinical and nutritional outcomes

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Objective: Protein-energy wasting (PEW) and sarcopenia are highly prevalent in advanced chronic kidney disease (CKD) and are associated with worse clinical outcomes and increased morbidity. Low-protein diets are recommended to reduce uremic toxin production and delay progression to end-stage renal disease (ESRD), although their long-term implementation may increase the risk of malnutrition, particularly in elderly and frail patients. Supplementation with ketoanalogues has been proposed as a strategy to improve metabolic control while preserving nutritional status.
Method: This observational study assessed the effects of a supplemented low-protein diet (sLPD; 0.6 g/kg/day) with ketoanalogues on metabolic and nutritional parameters in patients with advanced pre-dialysis CKD. Eight patients (mean age 82 years; 62.5% with diabetes) followed at the Ma.Re.A outpatient clinic of the Nephrology and Dialysis Unit of the San Raffaele Hospital were evaluated over a 9-month follow-up. Biochemical parameters, bioelectrical impedance analysis (BIA), and handgrip strength were recorded.
Results: Implementation of sLPD was significant associated with a reduction in plasma urea levels (207.8±43.4 vs 176.5±26.5 mg/dL), despite a concomitant decline in eGFR (9.5±5.8 vs 8.7±5.6 mL/min, p=ns). Moreover, BIA revealed improved hydration status, with decreased extracellular water (58.7% vs 55.8%) and increased intracellular water (41.3% vs 44.3%). Phase angle increased from 3.9±0.9 to 4.3±1, indicating improved cellular integrity. Muscle strength remained stable throughout follow-up, suggesting preservation of functional status in a population at high risk of PEW.
Conclusion: In patients with advanced CKD, sLPD supplemented with ketoanalogues was associated with improved azotemia control and favorable changes in body composition without decline in muscle strength. These findings support the potential role of ketoanalogue supplementation in maintaining nutritional and functional status in patients unable to meet recommended dietary targets. Larger prospective studies are needed to confirm these observations.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P027

Culturally Adaptable Low-Protein Diet Models for CKD G3b: A Practical Comparison of Plant-Based Dietary Patterns

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Objective: Low-protein diets (LPD) may slow progression and reduce mortality in chronic kidney disease (CKD); however, conventional prescriptions often prioritize nutrient targets over diet quality, cultural relevance, and long-term adherence. Plant-based dietary patterns (PBDPs) show potential renal and metabolic benefits, yet culturally adaptable low-protein models remain limited. To develop culturally relevant adaptations of a standardized low-protein prescription into diverse PBDPs for CKD G3b.
Method: A case-based dietary modeling approach was applied to a 60-year-old male (70kg) with CKD G3b without potassium restriction. Targets followed KDOQI 2020 recommendations (30kcal/kg/day; 0.7g protein/kg/day). One main meal (~50% of total energy; ≈1050kcal, 25g protein; 55% carbohydrates, 36% fat) was adapted into five patterns: DASH, Mediterranean, ovo-lacto vegetarian, vegan, and Milpa diet, allowing ±10% variation. Foods were prepared in a university food preparation laboratory, where dishes were plated and documented on a photographic session. Nutrient composition was analyzed using USDA databases.
Results: Mediterranean: salmon wrap, salad, berry bowl with nuts [1066kcal, 28g protein, 57% plant-based]. DASH: spinach-strawberry salad, grilled chicken, sautéed quinoa [1030 kcal, 27g protein, 56% plant-based]. Ovo-lacto vegetarian: eggplant lasagna with ricotta and cherry brioche [1061kcal, 28g protein, 61% plant-based]. Vegan: quinoa vegetable bowl with pear crumble [1053kcal, 27g protein, 100% plant-based]. Milpa diet: tlacoyos with nopales, squash, prickly pear [1047 kcal, 26g protein, 88% plant-based]. Nutrient ranges included fiber 11–30g, sodium 475–735mg, phosphorus 435–790mg, and potassium 1436–2225mg, primarily from organic sources.
Conclusion: Adapting a standardized LPD into diverse PBDPs is feasible in CKD G3b while preserving nutritional targets and cultural relevance. All PBDPs were low in sodium, higher fiber intake was observed in Milpa, vegan, and Mediterranean patterns. Despite higher total phosphorus and potassium in some menus, sources were primarily plant-based with potentially lower bioavailability; highlighting the importance of diet quality in CKD dietary prescriptions. Clinical studies should assess adherence and outcomes.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P028

Renal and Nutritional Outcomes of a Mediterranean Controlled Protein Diet in Onconephrological Patients

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Objective: Nutritional therapy plays a key role in the management of patients with chronic kidney disease (CKD) and patients with cancer, contributing to the prevention of malnutrition and to delaying disease progression. These 2 conditions are characterized by partially opposing nutritional requirements. According to KDIGO guidelines, a low-protein diet is recommended in CKD stages III–IV to reduce glomerular hyperfiltration and slow progression toward end-stage renal disease. Conversely, ESPEN guidelines for oncology emphasize a high protein intake to counteract cancer-related hypercatabolism and prevent malnutrition. The optimal dietary strategy for patients affected by both conditions remains unclear. This study evaluated the effects of a Mediterranean-like controlled protein diet on metabolic and renal outcomes in onconephrological patients compared with non-tumoral CKD patients
Method: A retrospective cohort of 358 CKD patients was enrolled at San Raffaele Scientific Institute. The cohort was divided into onconephrological patients (ON) and non-tumoral nephrological patients (NTN). Each patient underwent a diet controlled in protein intake (0.6–1.0 g/kg/day) and tailored according to comorbidities and nutritional status. Nutritional status was assessed using bioelectrical impedance analysis, anthropometry, and clinical history. Renal function was evaluated using creatinine, cystatin C, estimated GFR, and measured GFR
Results: Among 358 patients, 51.1% were ON and 48.9% NTN. ON patients were older, more frequently male, and more often single-kidney, with slightly lower baseline GFR. Body composition and anthropometric parameters were comparable between groups at baseline. During follow-up, serum urea significantly decreased in both groups, while creatinine, cystatin C, and GFR remained stable. Fat mass and central adiposity indices declined over time, whereas body cell mass, fat-free mass, skeletal muscle index, and phase angle were preserved. No significant deterioration in muscle-related or hydration parameters was observed
Conclusion: A Mediterranean controlled protein diet was safe in onconephrological patients, preserving muscle mass and nutritional status while maintaining renal stability. This approach may represent a balanced strategy in patients with concomitant CKD and cancer

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P029

Plant-based low-protein diet for preventing malnutrition inflammation complex syndrome in adults with CKD: a single-centre preliminary experience

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Objective: Chronic kidney disease (CKD) is a rising public health concern. Low protein intake reduces uremic toxin generation and improves the hemodynamic profile of the kidneys, postponing the need for eventual dialysis. Vegetarian diets have been shown to positively influence cardiovascular health and reduce uremic toxin levels and inflammation in CKD patients. The so-called “Malnutrition-Inflammation Complex Syndrome” (MICS) is a nontraditional cardiovascular risk factor that is associated with poor overall outcomes in CKD patients. The type of protein, not only the amount, may be relevant in the prevention of MICS, but at present no studies are published in the literature addressing this topic. The aim of our study was to evaluate the feasibility and efficacy of a plant-based diet in reducing CKD-related complications and preventing MICS.
Method: Adult subjects with CKD (3–5 stages) were retrospectively recruited. Each patient was evaluated for biochemical parameters, anthropometric measurements, body composition, and pharmacological treatments at baseline and after 6 months of dietary intervention.
Results: After six months of treatment, significant improvements ($p < 0.05$) were observed in indices of kidney function, lipid and glycemic profiles, vitamin D levels, plasma fibrinogen, anthropometric and body composition parameters, as well as muscle strength, whereas no significant changes were detected in plasma albumin levels or in the other parameters assessed. As observed in recent literature, the risk of hyperkalaemia associated with plant-based regimens in CKD patients has been set aside.
Conclusion: Our preliminary study confirms the feasibility and efficacy of a plant-based diet in reducing CKD-related complications and preventing MICS.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P030

Diet quality and bone mass in patients with chronic kidney disease: OSTEO4CKD study

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Objective: Chronic kidney disease–mineral and bone disorder (CKD-MBD) is a major complication associated with fractures, hospitalization, and mortality. Although nutritional factors are central to CKD management, evidence linking overall diet quality, rather than isolated nutrients, to bone health in CKD remains scarce. We investigated whether diet quality and food processing patterns are associated with bone mass in non-dialysis CKD patients.

Method: Cross-sectional analysis of baseline data from the ongoing OSTEO4CKD study. Dietary intake was assessed using two nonconsecutive 24-hour recalls. Diet quality was evaluated using the Diet Quality Index (DQI) and the NOVA classification (0-33 points for unprocessed/minimally processed foods and 0-33 points for ultra-processed foods).Bone mineral density and body composition were measured by dual-energy X-ray absorptiometry. Low bone mass was defined as a T-score < −1 SD

Results: Among 227 patients [63.2 ± 14.4 years; eGFR 36.0mL/min/1.73m² (IQR: 26.8; 55.0); BMI 27.8kg/m² (IQR 25.1; 31.6)] 33.9% had low bone mass. Diet quality index was 50.2 (42.5–61.1), predominantly intermediate for the majority of the patients (77.9%), characterized by higher intake of red and processed meats and refined grains and lower intake of legumes, nuts, and whole grains. The Nova score was 4 (2.0–5.0) for unprocessed/minimally processed and 2 (1.0–3.0) for ultra-processed foods. Both diet quality indices did not differ between patients with normal and low bone mass. In multivariable analysis, older age (OR: 2.89; 95% CI: 1.42 - 5.85) and lower appendicular lean mass (OR: 0.71; 95% CI: 0.53 - 0.95) but not diet quality or eGFR were independently associated with increased odds of low bone mass

Conclusion: In this CKD cohort, although diet quality was not associated with bone mass the low intake of healthy foods warrants attention. The association between lower muscle mass and low bone mass underscores the close interaction between muscle and bone, highlighting the need for comprehensive nutritional and body composition assessments in CKD.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P031

Meal Quality Matters: Acute Metabolic and Inflammatory Responses to Ultra-Processed vs. Healthy Meals in CKD Patients

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Objective: Diet quality can significantly influence inflammatory and metabolic markers in patients with CKD. This study aimed to evaluate the acute effects of consuming an ultra-processed food (UPF) meal compared with a healthy meal on inflammatory and metabolic markers in non-dialysis CKD patients.
Method: This acute pilot clinical study included 9 patients (5 women, 71 years, BMI 25.71 kg/m²). Participants were exposed to two test meals administered one week apart. In the first week, a meal composed predominantly of UPF (hot dog, French fries, and soft drink) was offered. In the second week, participants consumed a meal composed of minimally processed foods, including grilled chicken, vegetables, and natural fruit juice prepared with organic ingredients. Both meals were standardized to provide similar energy and macronutrient content. Blood samples were collected at baseline and 4 h after meal consumption. Paired comparisons between baseline and postprandial measurements were performed using paired statistical tests. Biochemical and hematological parameters were analyzed using the BioClin BS-1200 automated system by absorbance measurement.
Results: Plasma urea and phosphorus levels increased significantly 4 hours after both the UPF and healthy meals. Triglyceride ($p = 0.011$), glucose ($p = 0.044$), and LDL-c levels ($p = 0.015$) increased after the UPF meal, whereas no significant changes were observed following the healthy meal. No significant change in C-reactive protein (CRP) was observed after the UPF meal ($p = 0.173$); however, a significant reduction was detected after the healthy meal ($p = 0.028$). Potassium levels decreased significantly after the UPF meal ($p = 0.007$), whereas no significant changes were observed after the healthy meal ($p = 0.866$).
Conclusion: Acute UPF consumption triggered an unfavorable metabolic and inflammatory profile in CKD patients, whereas the healthy meal elicited a more favorable profile. These findings reinforce the importance of meal quality in the dietary management of CKD.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P032

Ketogenic diet for the treatment of severe obesity in a patient on peritoneal dialysis

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Objective: Kidney transplantation represents the gold standard therapy for patients with end-stage renal disease (ESRD). However, both undernutrition and overnutrition may preclude access to pre-transplant evaluation and listing. Severe obesity is associated with reduced quality of life, limited therapeutic options, and increased cardiovascular risk. Standard dietary interventions frequently fail. We report the use of a ketogenic dietary intervention as a salvage nutritional strategy in a patient with severe obesity undergoing peritoneal dialysis (PD).
Method: A 63-year-old woman on PD for 5 months presented with severe obesity and multiple previous failures of conventional weight-loss interventions. Baseline body weight was 135 kg (BMI 43 kg/m²) with residual renal function (eGFR 4 mL/min/1.73 m²). Following detailed nutritional assessment and bioimpedance analysis, a ketogenic diet was initiated (28 g carbs, 44 g fat, 113 g protein/day). The PD prescription was modified to minimize intraperitoneal glucose absorption..Urinary ketone testing confirmed nutritional ketosis. After 10 weeks, body weight decreased by 18 kg,followed by an additional 4 kg during a subsequent low-carbohydrate phase. Only a mild increase in mean blood urea levels was observed. BIA showed a >5% reduction in fat mass, an increase in phase angle, and a slight increase in lean body mass. Residual renal function remained stable. The patient currently weighs 110 kg and has been placed on the kidney transplant waiting list.
Results: Bariatric surgery in advanced CKD and dialysis patients is associated with higher perioperative risk. Emerging evidence suggests that, within a multidisciplinary framework, selected CKD patients may safely benefit from ketogenic diets.In our experience, the ketogenic approach enabled achievement of the therapeutic target without clinically relevant adverse effects and was well tolerated. Persistent ketosis despite intraperitoneal glucose exposure suggests that peritoneal glucose absorption may be overestimated in routine clinical practice.
Conclusion: A multidisciplinary approach enabled the safe implementation of a ketogenic diet in a setting where it is often considered contraindicated, allowing successful access to transplant listing.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P033

Nutritional intake and diet quality in hemodialysis patients: scope for improvement

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Objective: Hemodialysis (HD) patients often face challenges in maintaining dietary compliance. This study aimed to compare dietary intake with disease-specific guidelines, assess overall diet quality, and explore the relationship between dietary potassium intake and serum potassium concentrations.
Method: In this cross-sectional multicenter study, nutrient intake of Dutch adult HD patients was assessed using food frequency questionnaires, and diet quality was evaluated using the Dutch Healthy Diet 15-index. Dietary intake and quality were compared with disease-specific dietary recommendations, or the Dutch Dietary Guidelines. Intake was categorized as insufficient (<90% of the requirement), sufficient (90-100%), or excessive (>110%). The association between dietary potassium intake and serum potassium concentrations was analyzed using linear regression, adjusted for relevant confounders.
Results: The study included 248 participants (60% male) from 21 dialysis centers. Energy intake (1789 [872] kcal/day) was insufficient for 45% of participants, while protein intake (1 [0.5] g/kg/d) was insufficient for 50%. Although 67% of participants managed to maintain their energy intake below 110% of the recommended level, a high prevalence of overweight (61%) was observed in this cohort. Saturated fat intake was excessive for 87% of participants, and only 15% met the recommended fiber intake. Overall diet quality was low, with a mean score of 74 (20) out of a maximum score of 150. No significant association was found between serum potassium and dietary potassium intake after adjusting for relevant confounders ($r = 0.163$, $P = 0.261$).
Conclusion: A significant proportion of Dutch HD patients were unable to meet disease-specific dietary guidelines, and their overall diet quality was poor. We found no association between serum potassium and dietary potassium intake.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P034

”K2viewer”- a database to explore menaquinone contents in food

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Objective: Vitamin K2 promotes cardiovascular and bone health and its bioavailability is dependent on the subform and on one’s individual health. We recently identified reduced uptake of the vitamin K2 subform menaquinone (MK)-7 in dialysis patients. Information on vitamin K2 subforms in our diet is scarce.

Method: The vitamin K2 subforms MK-4 - MK-9 plus vitamin K1 were determined in various food matrices by reversed phase HPLC coupled with UV detection. In addition, a literature screening was performed and selected original data on vitamin K2 contents (MK-4 - MK-10) has been implemented into a database.

Results: A total of 18 publications measuring vitamin K2 contents in various food matrices were identified of which 12 were integrated into the database. By measuring further food items, we identified new items to contribute to the vitamin K2 pool in our diet, such as olives, green tea and cocoa. The most abundant MK in meat was MK-4- whereas in cheese it was MK-9. Up to date, the database consists of 223 single food items and enables ascending and descending sorting by single MK contents and enables us to create distinct patterns of MK per food category.

Conclusion: This is a unique database to represent MK 4-10 and phylloquinone contents of common groceries (*k2viewer.rwth-aachen.de*). It enables dietary recommendations towards personalized medicine and nutrient analyses on vitamin K2 by providing various patterns of MKs in food matrices such as fermented food.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P035

Analysis of German dialysis food supply and large language model refinements

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Objective: A nutritional therapy of patients on dialysis is challenging and its opportunities are being frequently underestimated. Here, we assessed the type and availability of food provided to patients during dialysis sessions in Germany.
Method: An anonymous online survery was conducted and dialysis units throughout Germany were encouraged to take part. With the help of provided photographs and weighted menues, nutrient analyses were performed by a professional dietician software (DGExpert). Second, a large language model approach was set up to analyze nutrient intakes and compared to the manual analysis.
Results: 53 dialysis units responded and were included into the survey. 62% report issues regarding the food supply, mostly mentioned were costs and lack of staff. Most frequent food supply consisted of wheat rolls and toppings (41%), followed by bread plus sweets and fruits (7%) and warm meals plus bread plus fruits and sweets (7%). A specialized dialysis meal was offered in 9% of the dialysis units, consisting of university hospitals and hospitals only. 4-6% either stated to offer nothing, sweets only or protein bars only.
Nutrient analyses revealed an average energy supply of 778 kcal, being highest if bread and more was offered. The fat intake was highest in the bread plus toppings meals and lowest in dialysis meals. The AI based nutrient analysis underestimated the average fat intake by almost 50%. No significant difference in between meal types were found for carbohydrates, fibers, protein, vitamin C, vitamin K, potassium, phosphorous and sodium intakes. Significant differences in the outcomes between professional software and AI based analyses were found for total amount, protein, vitamin K1 and potassium.
Conclusion: Issues in food supply at the dialysis units in Germany result in a major bread and toppings supply. Large language models based nutrient analyses based on pictures still require improvements.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P036

mHealth Supported Low Acid Diet Intervention in Advanced CKD: A Prospective Pilot Study

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Objective: Dietary acid load (DAL) contributes to metabolic acidosis, muscle wasting, and CKD progression, yet sustained dietary monitoring and individualized nutrition feedback remain difficult to implement in routine care. We evaluated the feasibility and short-term metabolic effects of a mobile health–supported low-acid diet intervention in advanced CKD.
Method: In this prospective single-arm pilot study, adults with CKD stages G3b–G5 (eGFR ≤45 mL/min/1.73 m²) received a 4-week low-acid diet intervention via a smartphone-based platform integrating dietary self-recording, automated nutrient analysis, acid-load estimation, and clinician feedback. DAL was quantified using potential renal acid load (PRAL) and net endogenous acid production (NEAP). Dietary intake, body composition assessed by bioelectrical impedance analysis, handgrip strength, biochemical parameters, and KDQoL-36 were evaluated at baseline and post-intervention. Subgroup analyses stratified by baseline PRAL and NEAP explored heterogeneity of response.
Results: Fifty participants were enrolled (mean age 48.5 years, 72% male; median eGFR 25.14 mL/min/1.73 m²). Energy and protein intake decreased significantly (−392 kcal and −23.4 g/day; both $P<0.001$), accompanied by reduced dietary acid load as indicated by lower NEAP (−5.1 mEq/day, $P=0.025$). Favorable changes were observed in metabolic and renal-related parameters, including modest reductions in serum potassium, phosphorus, and blood urea nitrogen. Skeletal muscle mass as measured by BIA and handgrip strength increased, while fat mass decreased. Health-related quality of life improved across kidney-specific and general domains. No adverse events were reported. Greater reductions in acid-load indices were observed in participants with higher baseline DAL, with NEAP stratification indicating differential metabolic responses.
Conclusion: A mobile health–supported low-acid diet was feasible and associated with improvements in nutritional status, metabolic parameters, and quality of life in advanced CKD. Patients with higher baseline DAL may derive greater benefit from digitally supported dietary management.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P037

Changes in Nutritional Intake and Progression of Chronic Kidney Disease: The CKD-REIN Cohort Study

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Objective: Studies on adherence to nutritional recommendations among patients with non-dialysis chronic kidney disease (CKD) remain limited. Most focus on a few specific nutrients and lack longitudinal data.
This study assessed nutritional intake in non-dialyzed patients with CKD, their adherence to dietary recommendations, changes in intake over time, and the relationship between changes in nutritional intake and CKD progression.
Method: We included 910 patients with CKD stage 2 to 5 under nephrology care in France (the CKD-REIN cohort). Nutritional intake was assessed twice (2017 and 2020) using a questionnaire and compared with the 2020 KDOQI recommendations. Adjusted Multinomial logistic regression was used to evaluate the relationship between changes in nutritional intake and CKD progression.
Results: Participants (median age 70 years; eGFR 32 mL/min/1.73 m²; 70% men; 36% with diabetes) had a median total energy intake (TEI) of 21.6 kcal/kg/day, below the KDOQI target (25–35 kcal/kg/day). Median protein intake (PI) was 0.83 g/kg/day, with 27% of diabetic patients meeting the target (0.6–0.8 g/kg/day), compared with only 7% of non-diabetic patients (0.55–0.6 g/kg/day). At the second survey, TEI decreased to 20.9 kcal/kg/day and PI to 0.78 g/kg/day. An increase of ≥0.14 g/kg/day in PI over three years (OR 1.81, 95% CI 1.39–2.37) as well as a reduction of ≥460 kcal/day in TEI (OR 1.99, 95% CI 1.48–2.69) were associated with rapid progression (eGFR decline ≥5 mL/min/1.73 m²/year or initiation of kidney replacement therapy) compared with slow progression (eGFR decline <2 mL/min/1.73 m²/year).
Conclusion: Nutritional intake among non-dialysis CKD patients remains far from current recommendations. Despite suboptimal adherence, a slight reduction in protein intake was associated with a slower decline in eGFR, whereas a reduction in total energy intake was associated with faster CKD progression.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P038

Geographical region as a determinant of healthy food consumption among patients on peritoneal dialysis in Brazil: results from the multicenter QUALI-DIET-PD study

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Objective: Diet quality is an important component of care for patients on peritoneal dialysis (PD). In Brazil, a country with marked regional disparities, dietary patterns may vary substantially. However, the factors associated with healthy food consumption in this population remain poorly explored. We aimed to assess the determinants of healthy food consumption among patients on PD in different Brazilian regions.
Method: This cross-sectional study included prevalent patients on PD from four of the five Brazilian geographical regions (QUALI-DIET-PD): Central-West, Southeast, South, and Northeast.
Dietary intake was assessed using a food frequency questionnaire from the national surveillance system (VIGITEL 2023). The frequency of consumption of four healthy food groups (beans, raw vegetables, cooked vegetables, and fruits), was used to generate a Healthy Foods Score with different scores according to the frequency of consumption, ranging from 0 to 56 in total, with higher scores indicating greater consumption of healthy food. Associations between the score and demographic and clinical variables were first explored in univariate analyses. Variables associated with the outcome were then included in a general linear model.
Results: A total of 360 patients were included (52% male; median age 60 [45–70] years; 44% with <9 years of education). The median of Healthy Foods Score was 24.5 (8.0–33.5). In univariate analysis, the score was positively correlated with age (r=0.12; p=0.02). Patients with diabetes had higher scores than those without diabetes (26.0 [19.5–34.2] vs. 23.5 [17.2–32.0]; p=0.03). Significant regional differences were observed (p<0.001), with the highest scores in the Central-West region. No differences were found between the score and other variables tested. In multivariable analysis, geographical region was the only independent determinant of the Healthy Foods Score. Patients from the Central-West had significantly higher scores compared with those from the Southeast, South, and Northeast regions.
Conclusion: Among patients on PD in Brazil, geographical region was the only independent determinant of healthy food consumption. These findings suggest that regional context plays a central role in shaping dietary patterns in this population.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P039

Association of Dietary Protein Sources and Phosphorus Intake With Advanced CKD: A Multicenter Study Among Bangladeshi Patients

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Objective: Dietary management is a fundamental component of chronic kidney disease (CKD) care, yet limited evidence exists on dietary intake patterns and their relationship with CKD severity in Bangladesh. This study aimed to evaluate dietary nutrient intake across CKD stages and examine its association with advanced CKD among Bangladeshi patients.
Method: A multicenter cross-sectional study was conducted among 562 adult CKD patients recruited from tertiary healthcare centers in Bangladesh. Dietary intake was assessed using a CKD-specific food frequency questionnaire designed to capture habitual intake of nutrients relevant to renal dietary management. Daily intakes of macronutrients and key minerals, including sodium, potassium, and phosphorus, were estimated. CKD stages were classified based on estimated glomerular filtration rate (eGFR). Logistic regression analysis was performed to identify dietary predictors of advanced CKD (stage ≥3). Multivariable models were adjusted for age, sex, body mass index (BMI), diabetes, hypertension, and cardiovascular disease.
Results: The mean age was 52.8 ± 13.6 years; 58% were male. Dietary intake and renal biomarkers showed significant stage-wise trends, with worsening renal function accompanied by increasing nutritional inadequacy across CKD stages (p-trend <0.05). In multivariable logistic regression analysis, higher plant protein intake was independently associated with lower odds of advanced CKD (AOR = 0.87, 95% CI: 0.82–0.94, $p < 0.001$). Conversely, higher dietary phosphorus intake was associated with increased odds of advanced CKD (AOR = 1.006, 95% CI: 1.003–1.009, $p < 0.001$). Sodium intake showed a significant association in unadjusted analysis but was not significant after adjustment. Animal protein and potassium intake were not independently associated with CKD stage.
Conclusion: This multicenter study demonstrates that dietary composition is significantly associated with CKD severity among Bangladeshi patients. Higher plant protein intake appears protective, while higher phosphorus intake is linked to advanced CKD. These findings highlight the importance of dietary assessment and targeted nutritional strategies in CKD management and underscore the need for stage-specific dietary interventions in Bangladesh.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P040

Association Between Plant-Based Diet Quality and Chronotype in Adults with Chronic Kidney Disease

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Objective: Chronotype (CT) reflects circadian preferences that influence behavioral and dietary patterns, has been associated with cardiometabolic health outcomes. Plant-based diets (PBD) have gained attention in chronic kidney disease (CKD) due to potential metabolic and renal benefits. However, the relationship between PBD quality and chronotype in CKD remains unclear. **Aim:** to evaluate the association between PBD quality and chronotype in adults with CKD.
Method: A cross-sectional study in 391 adults with CKD. Diet quality was assessed with General PBD Index (PBDI) derived from 18 food groups based on two 24-hour dietary recalls. CT with the reduced Morningness–Eveningness Questionnaire. Differences across PBDI quintiles: Kruskal–Wallis and chi-square tests. Associations with CT: Spearman correlations and adjusted linear regression models.
Results:

Variable	Q1 n=80	Q2 n=78	Q3 n=80	Q4 n=83	Q5 n=70	*p*
DBP score	83(77-87)	92(91-94)	100(98-101)	107(105-108)	114(113-117)	<0.0001
Agey, years	43(32–65)	36(31–55)	38(29–61)	45(33–62)	48(35–60)	0.05
Male, n (%)	51(64)	52(67)	45(56)	52(63)	43(61)	0.7
BMI, kg/m²	25.7(21.4-29)	24.9(21.6-28.3)	24.7(20.3-28.3)	23.8(21.2-28.1)	25.8(21.8-30.0)	0.3
kcal/kg	26.6(20.8-33.7)	23.9(19.9-29.3)	24.1(17.7-31.0)	23.5(17.4-29.1)	19.8(15.4-28.4)	0.002
Protein, g/kg	1.2(0.9-1.5)	1.1(0.7-1.3)	1.0(0.8-1.3)	1.0(0.7-1.2)	0.7(0.6-1.1)	<0.0001
CT score	17(14-19)	17(14-19)	17(14-19)	17(14-20)	18(14-20)	0.08

Higher PBDI scores were associated with higher CT scores (β=0.035, *p*=0.03). Age (β=0.085, *p*<0.001) and BMI (β=−0.078, *p*=0.02) were also associated with CT (Adjusted by age, sex, energy and protein intake, BMI).
Conclusion: Higher PBD quality was associated with a more morning-oriented CT in adults with CKD. However, even the highest PBDI quintile remained below the maximum score (180) and showed lower protein and energy intake. CT may influence diet quality in this population.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P041

Aspartame consumption alters body composition, increases protein carbonylation and decreases colonic Cln2 mRNA expression in a chronic kidney disease preclinical model

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Objective: Given the role of gut–kidney axis dysfunction in CKD progression and the widespread consumption of artificial sweeteners, this study evaluated the impact of chronic aspartame exposure on body composition, oxidative stress, and intestinal homeostasis in an experimental CKD model.
Method: Male *Wistar* rats were allocated to the groups Sham, Nx (5/6 nephrectomized), NxA40 (Nx receiving aspartame 40 mg/kg/day), and NxA50 (Nx receiving aspartame 50 mg/kg/day) for eight weeks via drinking water. During the final week of the experiment, body composition was assessed by dual-energy X-ray absorptiometry, and an oral glucose tolerance test (OGTT) was performed. Thiobarbituric acid reactive substances (TBARS), protein carbonylation, and colonic gene expression of inflammatory and intestinal barrier-related markers were assessed. Histological analyses were performed on the colon
Results: No differences were observed in final body weight or food intake between groups. NxA40 animals showed reduced fat mass (26.20 ± 9.65 vs. 51.38 ± 12.92 g, p=0.0023), adiposity index (56.94 ± 2.26 vs. 12.66 ± 2.79 %, p=0.0035), and total mineral bone content (9.20 ± 0.73 vs. 10.26 ± 0.59 g, p=0.0138) compared with Nx animals. Glycemia at 30 minutes during OGTT was higher in NxA40 (142.40±16.10 vs. 106.40±15.10 mg/dL, p=0.0053) compared to Nx. Plasma protein carbonylation increased in NxA40 and NxA50 (35.25±12.39 vs. 11.99±6.36 nmol/mg, p=0.0307; and 52.70±26.36 vs. 11.99±6.36 nmol/mg, p=0.0002, respectively), while colon carbonyl proteins were elevated in NxA40 (8.20±1.29 vs.4.20±2.60 nmol/mg, p=0.0214) compared to Nx. NxA40 animals also showed reduced expression of the tight junction gene *Cldn2* (0.04±0.05 vs. 2.63±4.10, p=0.0053) compared with Nx and decreased neuromuscular layer thickness compared with NxA50 (134.50±19.60 vs. 227.70±70.01 µm, p=0.0293).
Conclusion: Chronic aspartame consumption in a preclinical CKD model altered body composition and increased protein carbonylation in plasma and colon, and *Cldn2* expression without affecting food intake or body weight.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P042

Brazil nut reduces calcium deposition and matrix mineralization in vitro and attenuates kidney damage and vascular remodeling in a preclinical CKD-associated vascular calcification model

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Objective: Given the high prevalence of cardiovascular calcification in chronic kidney disease (CKD) and the potential of bioactive compounds from food to modulate renal and cardiovascular outcomes, this study aimed to evaluate the effects of Brazil nuts on vascular calcification in cultured vascular smooth muscle cells (VSMCs) and on cardiovascular parameters in a CKD-associated vascular calcification model.
Method: VSMCs in osteogenic medium with Brazil nut extract had calcification assessed by alizarin red and calcium deposition. *Wistar* rats were divided into Sham, Nx (adenine diet) and Nx+Brazil nut (BN) groups. Nx and BN received a high-phosphate diet and calcitriol injections. BN diet (10%) was offered for 4 weeks. Serum urea and creatinine, thiobarbituric acid reactive substances (TBARS) and protein carbonyl, mRNA runt-related transcription factor 2 (*RUNX2*), nuclear factor erythroid 2-related factor 2 (*Nrf2*), and nuclear factor kappa B (*NfκB*) levels, and histological analysis were performed.
Results: Brazil nut extract reduced relative calcium deposition (1.828 and 2.166 *vs* 4.376µg/µg protein, $p<0.0001$) and alizarin red staining (0.9004 and 0.8657 *vs* 1.123, $p=0.0017$ and $p=0.0004$) compared to non-treated VSMCs. *In vivo*, the BN group showed reduced creatinine concentrations compared to the Nx group (0.59 *vs* 0.78mg/dL, $p=0.05$). Also, BN reduced tubular dilation compared to the Nx group. The BN-modulated aorta was thicker than the Nx (123.1 *vs* 156.8 µm, $p=0.0038$). No significant differences were observed in urea, TBARS, or protein carbonylation levels, nor in the aortic gene expression of the *RUNX2, Nrf2*, and *Nf-κB.*
Conclusion: Brazil nut reduced VSMC calcification and decreased serum creatinine and aortic thickness in CKD animal model, suggesting vascular and renal protection.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P043

Multicenter Randomized Study of a Very Low-Protein Diet Supplemented with Ketoanalogues in Patients with Advanced Chronic Kidney Disease in Spain: The ADHERENCE Study

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Objective: Clinical guidelines recommend a very low-protein diet (VLPD) supplemented with ketoanalogues (KAs) for patients with advanced chronic kidney disease (ACKD) to slow disease progression and improve quality of life. However, its implementation remains limited in Spain, and data on patient adherence are scarce.
The aim of this study was to evaluate adherence to and tolerability of a VLPD supplemented with essential amino acids (EAAs) and KAs in non-dialysis chronic kidney disease (CKD) patients.
Method: This multicenter, randomized, controlled study evaluated adherence over 9 months to a VLPD supplemented with KAs in non-dialysis CKD patients, assessed using the Morisky Medication Adherence Scale.
Secondary outcomes included changes in estimated glomerular filtration rate (eGFR), proteinuria, serum urea, creatinine, and bicarbonate levels, calcium–phosphorus metabolism, body composition, and muscle strength assessed by bioelectrical impedance analysis (BIA).
Results: A total of 33 patients were analyzed (67% male; mean age 67 ± 11 years; eGFR 16.8 ± 4.1 ml/min/1.73 m²), randomized into two groups: LPD vs VLPD + KAs.
The VLPD group showed good acceptance of both the diet and supplementation, with moderate to high adherence in 80% of patients from the first month, which was maintained throughout follow-up.
The VLPD was associated with an increase in muscle mass, a decrease in C-reactive protein (CRP) and parathyroid hormone (PTH), an increase in calcium levels, and a reduction in phosphorus levels. Body weight, fat mass, extracellular volume, Malnutrition-Inflammation Score (MIS), and serum albumin levels remained stable. eGFR and proteinuria remained unchanged in both groups.
Conclusion: Protein restriction supplemented with KAs shows good short-term tolerance and acceptance. This study confirms several beneficial effects associated with a VLPD supplemented with KAs, including anti-inflammatory effects, preservation of nutritional status, and improved phosphorus control. These findings suggest that safe protein intake restriction can be achieved while maintaining stable protein stores.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P044

Dietary exposure to highly hazardous pesticides is higher after hospital discharge in kidney transplant recipients

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Objective: Dietary patterns influence exposure to foodborne contaminants such as pesticides, representing a potential but underrecognized risk in kidney transplant recipients. Hospital-controlled diets may modify this exposure; however, real-world dietary patterns after discharge remain unclear; therefore, this study evaluates changes in urinary pesticide exposure associated with dietary patterns in kidney transplant recipients transitioning from a controlled hospital diet to free-living conditions.
Method: A prospective cohort of 35 kidney transplant recipients was followed for 6 months. Baseline assessment was conducted during hospitalization (postoperative days 4-5) using weighed dietary records. Follow-up included at 3 and 6 months include 24-hour dietary recalls. Urinary levels of a panel of 20 pesticides, including 2,4-D and glufosinate, were measured using HPLC-MS/MS. Pesticides were classified as systemic or contact compounds. All detected compounds are classified as highly hazardous pesticides by the Worl Health Organization.
Results: After discharge, patients showed increased energy intake, dietary variability, and food diversity under free-living conditions. Total pesticide concentrations increased significantly over time ($p<0.001$). During hospitalization, only systemic pesticides were detected, consistent with the hospital-controlled diet. After returning home, exposure patterns shifted with the emergence of contact pesticides, particularly glufosinate which was absent at baseline but frequently detected at 3 and 6 months. No significant differences were observed between 3 and 6 months for contact pesticides, suggesting stabilization after initial dietary exposure. In contrast, 2,4-D remained consistently detectable across all time points.
Conclusion: Pesticide exposure was higher after hospital discharge compared to the controlled hospital environment in kidney transplant recipients. These findings suggest a potential role of dietary patterns and food environment in contributing to contaminant exposure beyond clinical settings.

Dietary patterns/dietary intake (incl. plant-based, low protein, keto, Western diet/UPF) (P016-P045)

P045

Estimation of dietary acid load in patients with pre-dialysis chronic kidney disease stage 3 to 5

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Objective: Metabolic acidosis (MA) increases in advanced stages of chronic kidney disease (CKD). One of the factors favouring the development of MA is the dietary acid load (PRAL). The incidence of MA changes throughout CKD, but it is not known whether the PRAL of the diet changes according to the stage of the disease.
Method: To determine the differences in dietary PRAL according to disease stage in patients with pre-dialysis CKD grade 3 to 5. Materials and methods: Dietary PRAL was estimated by 24-hour recall (R24) and food frequency questionnaire (FFQ). Nutritional status was assessed by subjective global assessment (SGA) and anthropometry. ANOVA or Kruskal-Wallis was used to compare variables between CKD stages, and Pearson's or Spearman's correlation for associations between variables. A $p<0.05$ was considered significant
Results: A total of 123 patients with CKD were included, 67% of whom were women. The median BMI was 27.2 (24.5-30.6). 30.1% of the population had some degree of malnutrition assessed by SGA. A significant association was found between GFR and PRAL of R24 ($r=0.189$, $p=0.037$). PRAL decreased with CKD progression, although no significant differences were found. PRAL was significantly associated with the amount of calories and lipids consumed daily (R24: $r=0.44$ and $r=0.58$, $p<0.0001$, respectively, FFQ: $r=0.31$ and $r=0.36$, $p<0.001$, respectively). The PRAL of the diet was not associated with the nutritional status of the patients.
Conclusion: Dietary PRAL decreases as CKD progresses, which may reflect reduced food intake as it correlates with calorie and lipid intake

Electrolyte, mineral and bone disorders (P046-P051)

P046

Serum sodium levels and risk of all-cause mortality among hospitalized patients with chronic kidney disease

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Objective: We investigated the association between serum sodium levels and all-cause mortality among hospitalized patients with chronic kidney disease (CKD).
Method: In this study, 230,835 hospitalizations were included. We divided the participants into six categories based on the quintile of blood glucose-corrected serum sodium levels. The primary outcome was all-cause in-hospital mortality. We fit multivariable logistic regression models with [138, 140) mEq/L as the reference. We then conducted segmented (piecewise) logistic regression to estimate potential inflection points, using profile likelihood to identify the knot with the best model fit, and reported odds ratios (ORs) per 1 mmol/L change within segments.
Results: Among 230,835 CKD hospitalizations, 12,149 in-hospital deaths occurred (5.3%). Per 1 mEq/L increase, the odds of death were higher in unadjusted analyses (OR, 1.03; 95% CI, 1.02-1.03; $P < 0.001$) and remained significant after stepwise adjustment (Model 3 OR, 1.02; 95% CI, 1.02-1.03; $P < 0.001$). Per 1-SD increase, the adjusted OR was 1.09 (95% CI, 1.07-1.11; $P < 0.001$). Using [138, 140) mEq/L as reference, both hyponatremia and hypernatremia were independently associated with higher mortality. In full adjusted model, ORs were 2.40 (95% CI, 2.21-2.60) for <132 mEq/L, 1.41 (95% CI, 1.32-1.50) for [132, 136) mEq/L, and 1.11 (95% CI, 1.04-1.18) for [136, 138) mEq/L. Above-normal sodium also conferred excess risk: ORs were 1.19 (95% CI, 1.12-1.26) for [140, 144) mEq/L and 2.90 (95% CI, 2.71-3.11) for ≥144 mEq/L. Restricted cubic splines reported a U-shaped association between serum sodium levels and all-cause mortality risk in hospitalized CKD patients (P for non-linear: <0.001), a piecewise logistic regression model was applied, identifying an optimal break-point at 138.5. Below this threshold, serum sodium was inversely associated with mortality (adjusted OR: 0.92, 95% CI: 0.91-0.93, $P < 0.001$). In contrast, above the break-point, each unit increase in serum sodium was associated with a significantly elevated mortality risk (adjusted OR: 1.13, 95% CI: 1.12-1.13, $P < 0.001$).
Conclusion: Both hypernatremia and hyponatremia may be independent risk factors for all-cause mortality in CKD patients.

Electrolyte, mineral and bone disorders (P046-P051)

P047

TAMANI Project: Efficacy and Metabolic Impacts of an Intensive Nutritional Intervention for Treating Metabolic Acidosis in Chronic Kidney Disease - Preliminary Results

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Objective: Metabolic acidosis is a frequent complication of chronic kidney disease (CKD), associated with sarcopenia, bone loss, and renal progression. Standard treatment with sodium bicarbonate (NaHCO3) imposes a deleterious sodium load, promoting hypertension and fluid retention. Recent data suggest that an alkalizing plant-based diet corrects acidosis while offering superior cardiovascular protection.
Method: The TAMANI pilot study is a prospective interventional trial evaluating the feasibility of an exclusively nutritional approach over 8 weeks. The objective is to increase serum bicarbonates (≥ 2 mmol/L) without pharmacological agents. The protocol includes CKD patients (eGFR 15-60 ml/min/1.73m²) with acidosis (HCO3- 18-22 mmol/L). The intervention relies on three pillars: consumption of 7 portions of fruits and vegetables daily, restriction of animal proteins (1 meal/day), and optional alkaline hydration. Monitoring relies on 24-hour urine collections (including measuring pH, citrates, nPNA and natriuresis) and capillary blood gases to precisely quantify bicarbonates.
Results: Interim analysis of the first 5 participants demonstrates remarkable efficacy. Acid-Base Correction: 100% of participants increased their serum bicarbonates (gain of +1 to +6 mmol/L) and normalized their blood pH. Urinary pH increased, confirming dietary alkalinization. Metabolic Health: Beneficial pleiotropic effects were observed, including weight loss in 4 out of 5 patients (up to -9 kg in one participant) and systematic improvement in glycemic control (decrease in HbA1c in all subjects). Renal Protection and Sodium Balance: The albumin-to-creatinine ratio (ACR) decreased in 4 out of 5 patients, dropping from 126 to 31 mg/mmol in one subject. Unlike NaHCO3 treatment, natriuresis (urinary sodium) decreased in the majority of patients, confirming the absence of sodium overload. No episodes of hyperkalemia were reported.
Conclusion: Preliminary results from the TAMANI study suggest that the intensive nutritional approach is a safe and effective alternative to pharmacological treatment. Beyond correcting acidosis, it generates major clinical benefits (weight, glycemia, albuminuria) without the risks associated with sodium loading, justifying its potential integration into standard nephrology care.

Electrolyte, mineral and bone disorders (P046-P051)

P048

Potassium additives in ultra-processed foods identified from label-analysis: More than meets the eyes

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Objective: Nutritional guidelines for managing hyperkalaemia in individuals with chronic kidney disease emphasise an individualised approach, focusing on adjusting dietary potassium intake by selecting low-potassium foods and avoiding ultra-processed food. However, little is known about potassium additives in ultra-processed food.
This study aimed to assess the prevalence of potassium additives in ultra-processed food from supermarkets in Denmark and to identify the specific additives used in these products.
Method: A cross-sectional label analysis was conducted. Ultra-processed foods were identified according to the NOVA classification system. Three supermarket stores in Denmark were selected to capture a representative range of products. Products were examined via the supermarkets' online platforms and assigned to twelve predefined food categories.
Results: A total of 5,884 ultra-processed foods were included. Of the included products, approximately 28% contained at least one potassium-based additive, while for approximately 6% of the products it remained unknown whether they contained potassium additives. The most frequent additive was E202 (potassium sorbate, 60.6%) followed by E950 (Acesulfame K, 19.7%) and E501 (Potassium salts of fatty acids, 8.8%). Across all categories, products containing at least one potassium additive were most frequently observed in sauces (54.0%); fish, seafood and derivatives (42.6 %) and non-alcoholic beverages (37.8%). Products with two potassium additives were most common in non-alcoholic beverages (30.8%), followed by fruit and vegetables products (8.4%) and vegan products (3.7%). Products containing three or more potassium additives were most prevalent in processed meat (3.2%).
Conclusion: Potassium additives are widespread in ultra-processed foods and can be hidden source of potassium, particularly in beverages, sauces, and fish, seafood and derivatives. These findings underline the importance of dietary guidance for individuals with chronic kidney disease at risk of hyperkalaemia and raise awareness of additive exposure in food choices.

Electrolyte, mineral and bone disorders (P046-P051)

P049

SCLY-Mediated Selenium Recycling Attenuates Renal Ischemia-Reperfusion Injury by Maintaining Proximal Tubule Cells Homeostasis

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Objective: Acute kidney injury (AKI) imposes substantial clinical and economic burdens, with ischemia-reperfusion (IR) injury being a primary etiology. Clinical observations consistently reveal low serum selenium levels in AKI patients. However, direct selenium supplementation carries toxicity risks. This study aimed to investigate the role of endogenous selenium metabolism in AKI pathogenesis and to identify potential therapeutic gene targets within this pathway.

Method: Selenium speciation was analyzed using ICP-MS. Transcriptome sequencing and single-cell RNA sequencing (scRNA-seq) datasets were utilized to identify hub genes in selenium metabolism. Systemic SCLY-knockout (SCLY-KO) mice were established. Renal function, histopathology, markers of oxidative stress were assessed. In vitro, an ATP depletion-repletion model using carbonyl cyanide 3-chlorophenylhydrazone (CCCP) was employed in human renal proximal tubule cells with SCLY silencing or overexpression. Cellular mitochondria damage, ferroptosis, and apoptosis were evaluated.

Results: Total serum selenium levels were reduced in AKI patients, with a pronounced decline in selenocysteine levels. Transcriptomic analysis identified selenocysteine lyase (SCLY), the key enzyme catalyzing selenocysteine decomposition to recycle selenium for selenoprotein synthesis, as a hub gene downregulated in AKI. scRNA-seq pinpointed SCLY downregulation specifically in renal proximal tubular cells 4 hours following IR, with the most pronounced reduction observed in the S3 segment. Functionally, SCLY-KO mice exhibited exacerbated IR injury. In vitro, SCLY silencing aggravated CCCP-induced cell injury. Conversely, SCLY overexpression elevated intracellular selenocysteine levels, enhanced selenoprotein expression, and rescued the pathological phenotypes. Notably, the protective effect of selenium supplementation was abolished by SCLY silencing in CCCP-treated cells.

Conclusion: SCLY plays a critical protective role against renal IR injury by facilitating selenium recycling from selenocysteine, thereby supporting renal antioxidant defenses and maintaining proximal tubule cell homeostasis. Enhancing SCLY function represents a promising therapeutic strategy for AKI by mitigating the deleterious effects of selenium dysregulation.

Electrolyte, mineral and bone disorders (P046-P051)

P050

Potential Cardiovascular Protective Role of Magnesium in Patients on Dialysis

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Objective: Dysregulated mineral metabolism in end-stage kidney disease (ESKD) may worsen outcomes. We evaluated associations of iCa and Mg with cardiovascular events, cerebrovascular events, and mortality.
Method: We analyzed 429 ESKD patients from 17 centers in the ORCHESTRA cohort; serum ionized calcium and magnesium were measured every 6 months, and the mean follow-up was 1,062 days. We defined exposures as time-averaged serum iCa and Mg values, calculated from measurements taken at the start of follow-up (month 0) and 6 and 12 months before baseline. These time-averaged values were then categorized into quintiles (Q1–Q5). Multivariate Cox regression—adjusted for demographics, underlying diseases, medications, alcohol use, smoking, and laboratory data—was used to estimate hazard ratios (HRs) for cerebrovascular events, cardiovascular events, and all-cause mortality. Subgroup analyses were conducted for serum Mg, and p for interaction were calculated.
Results: In fully adjusted models, the highest iCa quintile (Q5) conferred a markedly increased risk of cerebrovascular events versus Q1 (HR 31.37; 95% CI 1.42–694.97; p for trend 0.014). Conversely, higher Mg was associated with lower risks of cardiovascular events and mortality: for cardiovascular events, Q3 yielded an HR of 0.38 (0.17–0.87) and Q5 an HR of 0.42 (0.18-0.94); for all-cause mortality, Q2 had an HR of 0.44 (0.22–0.87) and Q5 an HR of 0.32 (0.13-0.75). In subgroup analyses, the inverse association between serum magnesium and mortality was significantly stronger among patients using an angiotensin receptor blocker or an angiotensin-converting enzyme inhibitor, and among those not receiving beta-blockers or diuretics.
Conclusion: Elevated serum iCa is strongly associated with higher cerebrovascular risk, whereas higher serum Mg independently protects against cardiovascular events and reduces mortality in ESKD patients.

Electrolyte, mineral and bone disorders (P046-P051)

P051

Impact of dietary sodium and potassium intake on edema formation in a murine model of experimental nephrotic syndrome

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Objective: The epithelial sodium channel ENaC expressed in the distal nephron is decisive for sodium (Na) and potassium (K) homeostasis and both dietary Na and K intake affect ENaC activity. In experimental nephrotic syndrome (NS), ENaC is activated by proteasuria and mediates renal Na retention and edema formation. In this study, we aimed to define the impact of dietary Na and K intake on ENaC-mediated edema formation in mice subjected to experimental NS.
Method: A genetic mouse model with inducible deletion of podocin (*Nphs2*$^{\Delta ipod}$) was used to establish experimental NS. Mice were treated with either a Na and K replete control diet, or a low or high Na diet or a low or high K diet, starting on the day of the end of induction treatment. Subsequently, nephrotic mice were followed for 14 days. Body weight (bw) was recorded daily and a urine sample was obtained by bladder massage.
Results: After induction of NS, *Nphs2*$^{\Delta ipod}$ mice in all groups (n=6 each) developed comparable proteinuria of > 120 mg/mg creatinine on day 10 regardless of the dietary treatment (p=0.15). *Nphs2*$^{\Delta ipod}$ mice treated with a control diet developed sodium retention with a decrease in urinary sodium excretion from a mean of 332 ± 30 µmol/mg creatinine before onset of NS to a minimum of 4 ± 0.3 µmol/mg creatinine between day 5 to 8. This was paralleled by a maximal bw gain by + 28 ± 3 % with ascites formation. *Nphs2*$^{\Delta ipod}$ mice fed a high Na diet experienced bw gain exceeding >40% on day 7, leading to termination of the experiment. In contrast, *Nphs2*$^{\Delta ipod}$ mice fed a low Na diet did not experience significant bw gain (+ 2.8 ± 1.2 %). In *Nphs2*$^{\Delta ipod}$ mice fed a low or high K bw gain was similar to that seen under control diet (+ 24 ± 3 % and + 30 ± 5 %, respectively). Mean plasma sodium concentration ranged between 145 – 149 mM and plasma potassium concentration was <5.2 mM in all groups.
Conclusion: Dietary sodium intake critically determines edema formation in experimental NS whereas dietary potassium intake appeared to have no effect. Future studies will explore the interaction of modifying both dietary Na and K intake.

Enteral and parenteral nutrition (P052)

P052

Role of enteral hydration as a treatment for hypernatremia

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Objective: To compare the efficacy of enteral hydration (EH) (nasogastric tube, NGT) versus parenteral hydration (PH) as a treatment for hypernatremia.
Method: p[Na+] was determined by potentiometry with ion-selective electrodes. Volume status determined using clinical parameters (blood pressure, heart rate, diuresis, skin turgor) and lab parameters (hemoglobin, Hct, BUN, creatinine clearance, serum uric acid). Parenteral hydration was carried out through i.v. hypotonic solution, (hypotonic 0.45% saline or a 5% glucose solution) Enteral Hydration employed a poliurethane ENFit 5-10 French Nasogastric Tube (NGT) placed and secured at gastric or duodenal/digiunal level
A retrospective cohort study was carried out on 13 Consecutive hypernatremic patients admitted into the ER Dept. or the Nephrology and Dialysis Unit fulfilling the inclusion criteria: severe states of dehydration for decreased thirst drive or inability to care for themselves and alterations water and Na+ balance not secondary to endocrine disorders or drugs. Patients included 9 males (69.3%) and 4 females with a mean age of 79.8 ± 11.1 years. For each patient, plasma concentration of Na+ was determined in a cross-over design before and during parenteral hydration and subsequently enteral hydration, each lasting 3 days. A total of 67 and 101 measurements were recorded, respectively. Measurments were repeated considering only 29 measurements from the 13 enrolled subjects, corresponding to the final value of each hydration cycle: 16 for parenteral hydration and 13 for enteral hydration.
Results: Parenteral hydration was associated with significantly higher p[Na+] compared to enteral hydration. These results may impact on clinical practice by supporting the preferential use of the enteral hydration, whenever feasible, and contribute to the management of hypernatremia.
p[Na+] promptly decreased after hydration through NGT.
Conclusion: Multivariate analysis showed that enteral hydration significantly reduced p[Na+]
Enteral hydration through NGT as a therapeutic approach to TBW imbalance is therefore more effective than parenteral hydration , leading to improvements in renal hemodynamics and function.

Gut microbiota, metabolites and uremic toxins (P053)

P053

Profile and Severity of Constipation Symptoms in Hemodialysis Patients - a Pilot Study

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Objective: The aim of this study was to assess the prevalence and severity of bowel dysfunction, including constipation-related symptoms, in patients undergoing hemodialysis and to perform a preliminary qualification of patients for potential synbiotic intervention.
Method: This observational study included 53 patients with chronic kidney disease treated with maintenance hemodialysis. Demographic and clinical data were collected, including age, body weight, height, body mass index (BMI), comorbidities, and duration of hemodialysis. Bowel habits were assessed using the Bristol Stool Form Scale, while constipation symptoms were evaluated with the validated PAC-SYM questionnaire, consisting of 12 items scored from 0 to 4 based on symptom severity over the previous two weeks. Descriptive statistical methods were used for data analysis.
Results: The mean age of participants was 65.5 ± 16.3 years, the mean BMI was 25.8 ± 5.9 kg/m². The median duration of hemodialysis treatment was 38 months (IQR 24–64). The most prevalent comorbidities were hypertension (79.2%), heart failure (43.4%), and diabetes mellitus (37.7%). The median Bristol Stool Scale score was 3.5 (IQR 3.0–5.0).
According to the PAC-SYM assessment, the most frequently reported symptoms were abdominal bloating (50.9%), sensation of incomplete bowel evacuation (47.2%), hard stools (39.6%), and straining during defecation (37.7%). Painful bowel movements (18.9%), rectal burning (17.0%), and abdominal cramps (11.3%) were reported less frequently.
Conclusion: Routine assessment of bowel symptoms may support early targeted interventions, including microbiota-modulating strategie

Obesity and diabetes (P054-P059)

P054

Renal sodium reabsorption exhibits hyperphagia-induced alterations in a Bardet-Biedl syndrome mouse model

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Objective: Bardet-Biedl syndrome (BBS) is a ciliopathy characterized by multisystem manifestations, including hyperphagia, polydactyly, neurocognitive deficits, and renal abnormalities. In pediatric patients, prominent features include impaired satiety and renal dysfunction, encompassing cystic kidney disease, hyposthenuria, and reduced glomerular filtration rate (GFR). These renal phenotypes may arise from disrupted polarization of renal epithelial cells. Notably, hyposthenuria in BBS occurs independently of NKCC2 dysfunction or aquaporin-2 mistrafficking. A clinical trial evaluating appetite suppressants in BBS patients demonstrated a significant GFR increase within the initial 12 months of therapy.
Method: BBS6 knockout mice and wild-type littermates served as the experimental model. Kidney tissues were harvested: one hemikidney was fixed for immunohistochemistry, while proteins and mRNA were isolated from the contralateral hemikidney. Western blotting and quantitative PCR (qPCR) assessed protein and mRNA expression levels, respectively; immunohistochemical analyses evaluated epithelial cell polarization in different segments using apical and basolateral membrane transporters.
Results: So far, our results show that BBS6 knockout does not induce defective cell polarization. Sodium transporters regulated by insulin are significantly upregulated, whereas all other examined transporters remain unchanged.
Conclusion: Together with findings from the clinical study, our data indicate that hyposthenuria in BBS may be associated with hyperphagia-associated hyperinsulinemia.

Obesity and diabetes (P054-P059)

P055

Lactylation of CTCF at K48 Promotes Renal Fibrosis in Diabetic Kidney Disease

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Objective: Diabetic kidney disease (DKD) is a leading cause of end-stage renal failure, with renal fibrosis being a hallmark of disease progression. Podocyte injury is central to the development of fibrosis, yet the molecular mechanisms driving this process remain poorly understood. This study investigates the mechanisms driving DKD renal fibrosis progression.
Method: Single-cell RNA sequencing was performed to identify differentially expressed genes in DKD kidneys. Lactylation and ubiquitination sites on CTCF were identified by LC-MS. Chromatin immunoprecipitation and transcriptional assays assessed CTCF's impact on LTBP4 transcription. The STZ-induced diabetic mouse model was used to evaluate the effects of these modifications on podocyte injury and fibrotic signaling.
Results: Single-cell RNA sequencing revealed significant alterations in gene expression profiles in the kidneys of diabetic mice, with upregulated fibrotic markers and a decrease in LTBP4 expression. Chromatin immunoprecipitation confirmed that CTCF binds to the promoter region of LTBP4. LC-MS analysis identified lactylation at K48 and ubiquitination at K63 as critical post-translational modifications of CTCF, leading to reduced CTCF protein expression in DKD. In the STZ-induced diabetic mouse model, AAV5 targeting the CTCF lactylation mutant K48R, compared to wild type (WT), significantly reduced podocyte injury and attenuated fibrosis, confirming the functional relevance of these modifications in DKD progression.
Conclusion: These findings identify lactylation at K48 and ubiquitination at K63 as critical post-translational modifications that regulate CTCF stability in diabetic kidney disease. Disruption of the CTCF–LTBP4 axis contributes to metabolic stress-induced fibrosis, providing a novel therapeutic target for limiting fibrosis progression in DKD.

Obesity and diabetes (P054-P059)

P056

Association of Insulin Resistance Assessed by Estimated Glucose Disposal Rate with All-cause and Cardiovascular Mortality in Obese Population

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Objective: Although the estimated glucose disposal rate (eGDR) is a widely used marker of insulin resistance and has been confirmed to be closely associated with cardiovascular diseases and their prognosis, its specific impact on mortality risk in obese individuals remains unclear. Therefore, this study aims to clarify the association between eGDR and mortality risk in obese individuals, and to further reveal its potential value in risk assessment and clinical intervention.
Method: The obese population from the National Health and Nutrition Examination Survey (1999-2018) was divided into four groups according to the eGDR quartiles. The relationships between eGDR and all-cause and cardiovascular mortality were assessed using Cox proportional hazards regression models.
Results: A cohort of 12,721 obese adults was analyzed, with an average age of 45.4 ± 0.2 years, of which 7052 (52.7%) were female. During a median follow-up time of 8.9 years (IQR 4.6-14.2), 1123 (7.0%) all-cause deaths and 345 (2.1%) cardiovascular deaths occurred. Compared to participants in the Q1 of eGDR, the hazards ratios (HRs) (95%CI) for those in Q2 to Q4 were 0.83 (0.69-1.01), 0.61 (0.47-0.79), and 0.54 (0.38-0.77) for all-cause mortality, and 0.87 (0.65-1.18), 0.45 (0.29-0.72), and 0.37 (0.21-0.65) for cardiovascular mortality after covariate adjustment, which indicated that the lower eGDR levels predicted elevated risk of all-cause and cardiovascular death. And the restricted cubic spline analyses demonstrated a linear inverse association between eGDR and all-cause mortality (P for non-linear > 0.05), while indicating a nonlinear inverse relationship with cardiovascular mortality (P for non-linear < 0.05).
Conclusion: A significant negative association between eGDR and all-cause and cardiovascular mortality was indicated among obese participants, suggesting that eGDR is likely to serve as a novel and promising biomarker for predicting mortality in the obese population.

Obesity and diabetes (P054-P059)

P057

Synergistic impact of obesity and genetics on eGFR decline in Bardet-Biedl Syndrome: a cohort study

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Objective: Bardet-Biedl syndrome (BBS) is a rare ciliopathy characterized by obesity, metabolic complications, and in some patients progressive kidney dysfunction. Chronic kidney disease is a primary prognostic factor in BBS.This study aimed to evaluate the impact of modifiable risk factors, specifically Body Mass Index (BMI), and genetic variants on the rate of estimated Glomerular Filtration Rate (eGFR) decline to identify targets for personalized renal protection.
Method: A cohort of 65 BBS patients was evaluated for renal function, genotype, and BMI. A longitudinal sub-analysis was conducted on 24 patients (age≥16 years) with ≥10 years of follow-up. Patients were stratified by eGFR slope into Fast Progressors (≥3 mL/min/year) and Slow Progressors (<3 mL/min/year) to compare the influence of BMI severity and mutation type.
Results: In the entire cohort, 25% of patients presented an eGFR<60 mL/min/1.73m². Multivariable analysis identified BMI as independently associated with eGFR decline ($p<0.0001$), together with truncating variants, age and hypertension. In the longitudinal sub-analysis, although mean BMI was similar between groups (31.8±6.3 vs 28.8±5.3 kg/m²), the prevalence of severe obesity (BMI≥35 kg/m²) was 6-fold more prevalent in Fast Progressors compared to stable patients (37.5% vs 6.2%), while overweight patients and patients with grade 1 obesity were similarly represented. Rapid Progressors also showed a higher frequency of truncating mutations (83.3% vs 76.9%), *BBS9* involvement (33.3% vs 15.4%) and the absence of *BBS1* mutations.
Conclusion: These findings demonstrate that renal decline in BBS is driven by a critical synergy between genetic predisposition and metabolic stressors.The independent association of BMI with eGFR loss identifies weight management as a primary, non-genetic reno-protective intervention. Specifically, maintaining a BMI below 35 kg/m² through individualized nutritional strategies is essential to preserve long-term kidney function in this high-risk population. Our results highlight the importance of obesity-targeted interventions to prevent/slow kidney disease progression in this setting. Furthermore, these data support the role of BBS as a valuable clinical model for studying obesity-induced kidney damage.

Obesity and diabetes (P054-P059)

P058

Obesity aggravates morphological damage and oxidative stress in a chronic kidney disease preclinical model

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Objective: Obesity is an independent risk factor for chronic kidney disease (CKD), and dysfunctional adipose tissue expansion promotes lipotoxicity and renal dysfunction, potentially mediated by oxidative stress. Evaluate the impact of obesity on oxidative stress and kidney damage in a CKD preclinical model.
Method: Thirty-nine male C57BL/6 mice were assigned to Control (n = 19) or High-Fat (HF, n = 20) groups; HF mice received a high-fat diet for 12 weeks to induce obesity. Then, animals were allocated to Control C (n = 8), CKD (n = 11), HF (n = 10), and HFCKD (n = 10) groups to induce CKD, with 0.25% of adenine in the diet, until week 14. Body weight was recorded weekly. After being euthanized, plasma creatinine, urea, and eGFR were measured, and kidneys were collected for histomorphometry, and protein glycation was assessed to evaluate oxidative stress. (CEUA - n° 5396200122).
Results: The CKD animals showed lower adiposity compared to the HFCKD counterparts (0.42±0.58 vs 6.86±2.82 [%], p=0.0112), while the HF animals had higher percentages compared to the HFCKD (13.32±0.97 vs 6.86±2.82 [%], p=0.0475). Plasma creatinine was elevated in the HFCKD animals compared to the CKD (2.51 ± 0.45 vs 2.14 ± 0.37 [mg/dL], p=0.0491). The HFCKD animals also had higher phosphorus levels when compared to both the CKDs and HFs (12.39±1.25 vs 7.93±3.71 [mg/dL] p=0.0075; 12.39±1.25 vs 6.81±2.56 [mg/dL] p=0.0002). Despite no differences in glomerular diameter (p=0.0033), CKD and HFCKD animals showed marked tubular dilatation, and the HFCKD animals had a decrease in glomerular area compared to the HFs (2001±108.8 vs 2723±350.00 [mg/dL] p=0.0047). No significant differences were observed in plasma protein carbonylation (p=0.2680) between groups. However, the HFCKD group had higher values compared to the HF and CKD animals (37.68±13.10 vs 10.49±2.82 [mg/dL], p<0.0001; 37.68±13.10 vs 7.55±5.23 [mg/dL], p<0.0001) in the kidney.
Conclusion: Obesity promotes changes in renal structure and function, in addition to increasing oxidative stress in the kidney. Further studies are needed to elucidate the mechanisms for these findings.

Obesity and diabetes (P054-P059)

P059

Association between adiposity, inflammation, and oxidative stress in Non-Dialysis Chronic Kidney Disease Patients

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Objective: Chronic kidney disease (CKD) is characterized by persistent inflammation and oxidative stress, which can accelerate renal function loss and increase cardiovascular risk. Obesity, highly prevalent in patients with CKD, contributes to this scenario by releasing pro-inflammatory cytokines. This study aimed to analyze the relationships among obesity, inflammation, and oxidative stress in patients with CKD (stages 3-4).
Method: This cross-sectional study included 48 patients, who were evaluated via dual-energy X-ray absorptiometry (DXA), and stratified into a Normal Adiposity Group (NAG, n=22) and a High Adiposity Group (HAG, n=26) using cutoffs of 30% body fat (BF) for men and 40% for women. Biochemical parameters (urea, creatinine, albumin, Ca, P, K, and lipid profile), plasma cytokines (IL-1β and IL-17E), lipid peroxidation, and protein carbonylation were evaluated. Also, the gene expression (mRNA) of NF-κB, Nrf2, HO-1, NQO1, and AhR was analyzed by rt-qPCR. Statistical analyses were performed using SPSS.
Results: Groups were similar regarding age (57.8±11.7 vs. 57.0±13.7 years), eGFR (36.7±12.9 vs. 32.3±12.0mL/min/1.73 m²), gender, and prevalence of hypertension, diabetes, and dyslipidemia (p>0.05). The HAG group had lower HDL-c (48.5±9.4 vs. 58.6±15.5 mg/dL; p=0.020) and higher IL-1β (191.7±48.3 vs. 160.9±40.3 pg/mg; p=0.024) than the NAG group. Levels of IL-17E, lipid peroxidation, and protein carbonylation did not differ significantly between the groups (p>0.05). Although gene expression was similar between groups (p>0.05), %BF positively correlated with NF-κB expression (r=0.356; p=0.019) and hs-CRP (r=0.337; p=0.031). Furthermore, BMI was positively correlated with protein carbonylation (r=0.299; p=0.033)
Conclusion: High adiposity links to inflammation and oxidative stress in ND-CKD. Correlations among %BF, NF-κB, and hs-CRP reinforce its metabolic risk, highlighting body composition targets to mitigate disease progression.

Other / Miscellaneous (P060-P080)

P060

Knowledge and Flavors: Teaching the Renal Diet in the Kitchen

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Objective: Nutritional therapy represents a cornerstone in slowing the progression of Chronic Kidney Disease and controlling its complications. Nevertheless, CKD-specific dietary education is still poorly represented in the training pathways of food service professionals, despite their role in preparing meals for fragile and complex patients.
The aim of this project was to evaluate the effectiveness of an educational intervention addressed to hospitality school students, designed to improve knowledge of the main nutritional aspects of CKD and the ability to apply specific dietary strategies in the kitchen, including modulation of sodium, potassium, phosphorus, and protein intake, use of protein-free products, and cooking techniques to reduce mineral load.
Method: The educational program included a theoretical lesson on nephrological diet therapy, focusing on electrolyte metabolism, protein restriction, phosphorus management, potassium-reduction techniques, and the role of protein-free products. A 20-item pre–post questionnaire explored five domains: CKD pathophysiology, sodium, potassium, phosphorus, and protein-free products. The activity was complemented by a practical culinary workshop demonstrating low-electrolyte cooking techniques. Students also completed an anonymous satisfaction questionnaire using a 1–5 Likert scale.
Results: Questionnaire analysis showed a significant increase in knowledge in all evaluated domains. The greatest improvements were observed in phosphorus, potassium, and protein-free products. Students reported increased perceived competence and greater awareness of the clinical and nutritional impact of culinary choices in CKD patients.
Conclusion: An integrated educational approach combining theory and practice is effective in improving CKD-related nutritional awareness among hospitality students. Introducing nephrological diet therapy into culinary training programs may improve dietary management of CKD patients and contribute to the prevention of complications. This model appears replicable and scalable, promoting collaboration between healthcare and food service sectors.

Other / Miscellaneous (P060-P080)

P061

Acute Kidney Injury in Tiopronine-Induced Nephrotic Syndrome: A Case Report

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Objective: Cystinuria is an autosomal recessive disorder in the transporter of dibasic amino acids (cystine, ornithine, lysine, arginine) in the proximal renal tubule and small intestine cells. Tiopronine has been employed as a second-line therapy, decreasing stone formation by forming tiopronine-cystine complexes, thereby enhancing their urinary solubility. A major adverse effect of tiopronine is proteinuria resulting from the thiol group disrupting the disulfide bonds in the structure of the ”slit diaphragm” within the glomerular basement membrane.
Results: M.L., a 38-year-old man with normal renal function had a clinical history of cystinuria and recurrent cystine nephrolithiasis, monitored through urological follow-up with URO-CT scans (Figures 1 and 2). He had undergone extracorporeal lithotripsy and was on tiopronine treatment at a dose of 250 mg, three times/die. He was referred to the Nephrology Dept. due to the onset of dependent edema and the resulting weight gain, without macrohematuria, skin rash, or other symptoms. Serum creatinine was 1.6 mg/dL, BUN 26 mg/dL, spot proteinuria of 1000 mg/dL, with a normal hemogram, electrolytes, liver function tests and complement fractions and autoimmunity. Bedside ultrasound revealed no evidence of bilateral hydronephrosis, normal corticomedullary density ratio and a regular walled bladder 24-hour urine proteinuria reached 22 g while the urinary sediment was remarkable for uric acid crystals and hyaline casts. Tiopronine therapy was immediately discontinued and diuretic therapy was initiated resulting in a gradual clinical improvement, including weight loss of 10 kg, normalization of renal function and proteinuria decreasing to 720 mg/day. Three months after discharge, proteinuria further decreased to 150 mg/day, with normal blood chemistry results and unremarkable urinary sediment. Complete resolution of proteinuria and normalization of both clinical and laboratory parameters following tiopronine therapy discontinuation confirmed the diagnosis of mild acute kidney injury due to iatrogenic nephrotic syndrome induced by tiopronine

Other / Miscellaneous (P060-P080)

P062

A Prospective Study on the Feasibility of Using Effluent Calcium Monitoring to Assess Anticoagulation in RCA-CRRT

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Objective: Regional citrate anticoagulation (RCA) is standard for continuous renal replacement therapy (CRRT). While post-filter ionized calcium (Post-Filter iCa) is the gold standard for monitoring efficacy, it requires invasive blood sampling. This study assessed whether measuring ionized calcium in the effluent waste fluid (Effluent iCa) could serve as a viable alternative.
Method: In a prospective study at West China Hospital (June–November 2024), 36 critically ill patients on CVVHDF with RCA were enrolled. We analyzed 216 paired samples of Post-Filter iCa and Effluent iCa. Correlation and agreement were evaluated using Pearson correlation and Bland-Altman analysis. Unsupervised cluster analysis identified patient phenotypes based on calcium profiles.
Results: This study analyzed 216 paired samples from 36 critically ill patients on CVVHDF with regional citrate anticoagulation to assess the relationship between Post-Filter and Effluent ionized calcium. A significant correlation was found ($r=0.551$, $p<0.001$). Bland-Altman analysis showed a mean difference of –0.024 mmol/L with limits of agreement from –0.153 to 0.105 mmol/L. Linear regression confirmed an association ($\beta=0.64$, $p=0.001$) but with limited predictive power ($R^2=0.30$), indicating other factors influence Effluent calcium. Unsupervised cluster analysis identified three distinct calcium profiles: a dominant stable cluster (63%), a high-calcium cluster (20%) suggesting suboptimal anticoagulation, and a low-calcium cluster (17%) indicating more intense anticoagulation. These findings support the use of Effluent ionized calcium as a phenotypic marker of anticoagulation intensity during CRRT.
Conclusion: Traditional Post-Filter blood sampling for ionized calcium monitoring during CRRT with regional citrate anticoagulation poses risks of anemia, infection, and increased clinical workload. Our findings demonstrate a significant correlation between Effluent fluid and Post-Filter ionized calcium levels, supporting Effluent fluid as a viable alternative that reduces blood loss while effectively assessing anticoagulation efficacy.

Other / Miscellaneous (P060-P080)

P063

Renal Nutrition Practices in Brazilian Dialysis Units and the Influence of Specialized Training

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Objective: Nutrition is a cornerstone of dialysis care, contributing to improved quality of life and reduced risk of complications. Given the complexity and evolving evidence base of renal nutrition, understanding current professional practices is essential. This study aimed to describe the clinical practices of dietitians working in dialysis units in Brazil and to assess whether additional training in renal nutrition is associated with differences in these practices.
Method: This cross-sectional study used a quantitative approach. Dietitians currently working in dialysis units across Brazil were invited to participate. Data were collected between through an online, self-administered questionnaire distributed via social media and professional messaging groups. The instrument assessed practices related to the management of metabolic disturbances, promotion of healthy eating, use of educational tools, and implementation of patient care strategies. Practices were compared between dietitians with and without additional training in renal nutrition.
Results: A total of 232 dietitians working in 260 dialysis units completed the questionnaire, representing approximately 29% of registered dialysis centers in Brazil. Most respondents (73%) reported having additional training in renal nutrition. Compared with dietitians without additional training, those with training more frequently reported comprehensive management of serum phosphorus and potassium, greater integration within multidisciplinary teams, provision of individualized meal plans, and monitoring of more complex laboratory parameters.
Conclusion: Additional training in renal nutrition is associated with more comprehensive and evidence-based nutritional practices among dietitians working in dialysis units, highlighting the importance of professional qualification to optimize nutrition care in this setting.

Other / Miscellaneous (P060-P080)

P064

Barriers and Facilitators to Healthy Eating Among Patients with Stage 3-5 Chronic Kidney Disease According to Sex and Diabetes Status

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Objective: Nutritional therapy plays a key role in the management of chronic kidney disease (CKD), especially in the presence of an underlying condition such as diabetes mellitus (DM). Adherence to a healthy diet improves nutritional status, prevents complications, and delays the initiation of dialysis. Nevertheless, adherence to dietary recommendations is often poor and understudied from the patient's perspective.
Aim: To describe the barriers and facilitators (B&F) to adherence to a healthy diet among patients with CKD, and to analyze them according to sex and the presence of DM.
Method: A cross-sectional study with a mixed-methods approach was conducted in patients with CKD (3-5), aged >18 years and clinically stable of nephrology service in a Mexican hospital. Clinical and nutritional data (Subjective Global Assessment) as well as dietary quality (Mini-ECCA) were evaluated. B&F were analyzed using the saturation method through a semi-structured interview; responses were converted into “in vivo” and “theoretical” codes, then grouped into categories, and a second analysis was performed using ATLAS.ti software.
Results: 80 patients were included; 57% male, 55% had DM, 84% had hypertension, and 32% presented mild-to-moderate malnutrition. The quality of the diet was unhealthy in 25% and the diet needed improvement in 31% of the participants.
The qualitative analysis revealed that *emotions*, *food preferences*, and the *acquisition and understanding of nutritional information* were the main barriers identified among patients, whereas *support from healthcare professionals* and *food preferences* emerged as key facilitators.
Patients with DM reported more *healthy food preferences* as facilitators; however, they also perceived greater *dietary restrictions* than patients without DM.
Regarding sex differences, men identified *food freedom* as a greater facilitator, and their barriers were mainly related to *emotions* whereas women’s barriers were primarily associated with the *social environment.*
Conclusion: These findings suggest the need for more nutritional education interventions based on patients perceptions rather than solely on healthcare providers perspectives, to promote personalized and educational treatment approaches.

Other / Miscellaneous (P060-P080)

P065

Kidney-Oriented Nutritional Labeling: An Innovative Proposal to Incorporate Potassium and Phosphorus in Chile

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Objective: Evaluar el impacto de la inclusión de potasio y fósforo en el etiquetado nutricional obligatorio chileno sobre la intención de compra, la identificación de niveles críticos y la percepción de riesgo entre personas con ERC avanzada.
Method: Este estudio de métodos mixtos combina el análisis regulatorio del Reglamento Sanitario de Alimentos de Chile, una consulta estructurada con expertos y un estudio experimental con aproximadamente 100 pacientes en hemodiálisis. Los participantes evaluarán productos alimenticios simulados con etiquetas nutricionales actuales y modificadas mediante cuestionarios de escala Likert. Los resultados incluyen la intención de compra, la comprensión nutricional y el riesgo percibido. Se aplicarán modelos de regresión lineal ajustados a variables sociodemográficas.
Results: Resultados esperados: Se espera que el etiquetado modificado mejore la identificación de los críticos niveles de potasio y fósforo, aumente la percepción del riesgo y promueva decisiones de compra más consistentes con las recomendaciones dietéticas para la ERC.
Conclusion: La inclusión del potasio y el fósforo en el etiquetado nutricional obligatorio podría posicionar a Chile como pionero en políticas alimentarias orientadas a la salud renal. Esta estrategia tiene posibles implicaciones clínicas, educativas y regulatorias, y podría contribuir a un mejor manejo dietético en la ERC.

Other / Miscellaneous (P060-P080)

P066

Diet and Physical Activity in Fabry Disease: A Narrative Review

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Objective: Fabry disease (FD) is caused by mutations in the galactosidase alpha (GLA) gene which lead to the accumulation of globotriaosylceramide (Gb-3). Enzyme replacement therapy (ERT) and oral chaperone therapy are the current pharmacological treatments for this condition. However, in the literature, there is a growing emphasis on exploring non-pharmacological therapeutic strategies to improve the quality of life of patients with FD. In particular, the nutritional approach to FD has been marginally addressed in the scientific literature, although specific dietary interventions may be useful for the management of nephropathy and gastrointestinal complications, which are often present in patients with FD.Therefore, the aim of this review is to summarize current knowledge on the role of nutrition and physical activity in FD patients.
Method: This is a review article that summarizes current evidence from the scientific literature on non-pharmacological interventions for Fabry disease, with a specific focus on nutrition and physical activity. The review examines dietary approaches (including low-FODMAP diet for IBS management and polyphenol-rich foods) and sports practice in relation to the multi-organ involvement typical of FD (cardiovascular, renal, and neurological aspects).
Results: Especially in cases of confirmed diagnosis of irritable bowel syndrome (IBS), a low-FODMAP diet can represent an effective approach to improving intestinal manifestations. Furthermore, it is known that some food components, such as polyphenols, may be able to modulate some pathogenetic mechanisms underlying the disease, such as inflammation and oxidative stress. Therefore, the use of healthy dietary patterns should be encouraged in this patient group. Sports practice can be useful for patients with multi-organ involvement, particularly in cardiovascular, renal, and neurological aspects.
Conclusion: Therefore, the use of healthy dietary patterns should be encouraged in this patient group. This review summarizes current knowledge on the role of nutrition and physical activity in FD patients, highlighting that specific dietary interventions may be useful for the management of nephropathy and gastrointestinal complications often present in these patients

Other / Miscellaneous (P060-P080)

P067

Nutritional Knowledge in Mexican Patients with Chronic Kidney Diseases: Identifying Educational Gaps Across Treatment Stages

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Objective: Patient education is a fundamental component of chronic kidney disease (CKD) management, particularly regarding dietary recommendations that influence metabolic control and disease progression. Despite its importance, a gap often exists between information provided by healthcare professionals and patient understanding. Assessing knowledge may help identify educational needs and improve dietary counselling. This study aimed to evaluate nutritional knowledge among patients with CKD across treatment stages.
Method: A cross-sectional study was conducted in patients with CKD in pre-dialysis and dialysis stages. Participants completed a validated structured questionnaire of 35 items across five domains: sodium and fluid intake, potassium, phosphorus, protein, and common CKD-related myths. The maximum score was 93 points. Overall and domain-specific knowledge were assessed as percentage of correct responses and classified as low (<60%), moderate (61–80%), or high (>80%).
Results: A total of 255 patients were analyzed (147 women, 108 men): pre-dialysis (n=153) and dialysis (n=102; 82 hemodialysis, 20 peritoneal dialysis). Most showed moderate knowledge (58.0%), 38.0% low, and 3.9% high. Protein and potassium had the greatest deficits (64.7% and 56.9% low, respectively), while sodium showed the highest performance (median: 77.8%). Pre-dialysis patients had consistently lower knowledge across domains compared to dialysis patients. Sex differences were minimal.
Conclusion: These findings reveal critical gaps in nutritional knowledge that may compromise dietary adherence and metabolic control in CKD patients. Misconceptions about protein, potassium, and phosphorus can contribute to complications such as hyperkalemia, hyperphosphatemia, and protein-energy wasting. The low proportion of patients achieving high knowledge levels suggests that current educational approaches are insufficient. Nutritionists are well positioned to address this gap by incorporating validated knowledge questionnaires into routine consultations to identify deficits, personalize counselling, and monitor progress. Integrating this strategy into clinical practice could improve patient outcomes and support disease management.

Other / Miscellaneous (P060-P080)

P068

An evolution of changes in nutrition clinical practice guidelines for patients with chronic kidney disease, from restricted diets to embracing healthy dietary patterns: an in-depth review

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Objective: Nutrition recommendations for adults with chronic kidney disease (CKD) have changed dramatically over the past century. This review had two aims: i) to trace the shift in evidence-based global nutrition clinical practice guidelines (CPG) for people living with CKD in the 21st century; ii) to critically comment on how the rationale, quality of evidence and diet composition changes over time.
Method: A literature search to identify publicly available CPG for nutrition in adults with CKD published between 2000 and 2025 was performed. Guidelines that exclusively addressed inpatient nutrition, enteral nutrition or undernutrition/malnutrition in adults with CKD were excluded. Data were extracted from each guideline on nutrition recommendations for adults with CKD stage G1-5D (energy, protein, fat, sodium, potassium, calcium, phosphorus, fluid, dietary patterns, and other nutrition related recommendations).
Results: 10 nutrition CPGs for CKD were included from USA (n=5), Australia and New Zealand (n=2), Malaysia (n=1), Europe (n=1) and an international organisation (n=1). 5 guidelines were developed by national dietetic associations, 4 by kidney-specific organisations and 1 was a collaboration of both. Earlier guidelines emphasised restriction of individual nutrients (potassium, phosphorus, sodium and protein). Dietary patterns were first discussed by the Malaysian and Australian/New Zealand guidelines in 2004-5, and was not revisited again until 2020, where evidence supported the Mediterranean diet pattern and higher fruit and vegetable intake in specific sub-populations. Recent guidelines have adopted an individualised approach to nutrition care and recommendations now consider nutrient bioavailability, minimizing phosphate additives and processed food and promoting plant protein sources.
Conclusion: This review on CPGs published over the last 25 years demonstrates a clear shift in nutrition recommendation for CKD, from single-nutrients restriction toward the promotion of healthy dietary patterns. While this shift may improve dietary adherence by reducing the burden of restrictive dietary advice, the change in messaging may also lead to confusion. Ensuring all clinicians deliver consistent, evidenced based nutrition education is essential to support our patient's dietary self-management.

Other / Miscellaneous (P060-P080)

P069

Evaluation of the Validity and Reliability of the ”SaFETI-Q” Instrument in Renal Transplant Patients through Expert Judgment and Pilot Testing

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Objective: Evaluar la validez de contenido y confiabilidad del instrumento SaFETI-Q (Cuestionario de Evaluación Segura de Alimentos en Trasplantes e Inmunosupresión)
Method: Se seleccionó deliberadamente un panel de 12 expertos por su amplia experiencia en nutrición clínica renal y gestión de servicios de alimentación. Tras la aceptación formal de los acuerdos de confidencialidad, los expertos utilizaron una matriz de evaluación estandarizada para evaluar la claridad, coherencia, relevancia y suficiencia de cada ítem. La concordancia entre evaluadores se estimó cuantitativamente mediante el Coeficiente de Validez de Contenido (CVC), tanto para los ítems individuales como para la escala general. Además, la retroalimentación cualitativa de las observaciones abiertas se analizó mediante un análisis de contenido temático para identificar patrones y áreas específicas de mejora de los ítems.
Results: El panel de expertos estuvo compuesto por 6 especialistas en nutrición renal y 6 expertos en servicios de alimentación. Todos los ítems evaluados obtuvieron una puntuación CVC superior al umbral de 0,80, con un CVC general del instrumento de 0,96, lo que indica una excelente validez de contenido. La retroalimentación cualitativa permitió realizar ajustes estratégicos en la redacción, la especificidad técnica y la adaptación lingüística, garantizando así que la versión final fuera accesible y culturalmente apropiada para la población objetivo.
Conclusion: Se observó un alto nivel de acuerdo entre los expertos en todos los ítems. El análisis cualitativo facilitó la identificación de puntos de consenso y discrepancia, lo que permitió la reformulación de los ítems. El instrumento validado demuestra pertinencia y suficiencia para evaluar la manipulación higiénica de alimentos en pacientes con trasplante renal y ahora está preparado para la siguiente fase de validación: pruebas de fiabilidad.

Other / Miscellaneous (P060-P080)

P070

Salty taste disorders in patients with chronic kidney disease (CKD)

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Objective: Chronic kidney disease is an increasingly common condition. Appetite disorders are often unrecognized in this patients, but they can have significant consequences, such as reduced food intake and emerging malnutrition. Research indicates not only a reduced appetite in CKD but also impaired taste disorders. The aim of the study was to determine whether there is a relationship between the perception of salty taste and biochemical parameters in patients with chronic kidney disease and determine the sensitivity threshold for salty taste.
Method: The study included 21 individuals diagnosed with CKD (9 women and 12 men). The mean age in the study group was 62,3±16,14, with a mean body mass index (BMI) of 27,7±3,86 kg/m2 and eGFR 33,76±22,46 [ml/min/1,73 m2]. The control group consisted of healthy individuals without kidney disease or comorbidities.
To determine the threshold values, the detection threshold and recognition threshold were determined using the Barylko-Piekielna method, based on a scale (rank) of taste intensity. Distilled water and increasing concentrations of sodium chloride were used to perform the salty taste test.
As part of routine tests serum concentrations of: urea nitrogen, creatinine, potassium, sodium, hemoglobin, hematocrit, and eGFR were determined according to the MDRD/CKD formula. Statistical analysis was performed using Statistica 13.3.
Results: When assessing the detection threshold and salty taste recognition, a significant difference in taste sensitivity was observed between patients with chronic kidney disease and the control group. The relationship for the recognition threshold was statistically significant between the study and control groups (0,1944±0,05 vs. 0,183±0,055)(p=0,46). eGFR correlated with the salty taste recognition threshold in patients with chronic kidney disease (p=0,7).
Conclusion: Patients with CKD demonstrate a higher recognition and detection threshold for salty tastes compared to a healthy control group.
The study found no statistically significant correlation between blood sodium concentration and the detection and recognition threshold for salty tastes.
A statistically significant correlation was observed between GFR and the recognition threshold among patients with chronic kidney disease.

Other / Miscellaneous (P060-P080)

P071
A Modular Kidney School: A Stage-Adaptive Patient Education Programme in Renal Care

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Objective: Patients with chronic kidney disease (CKD) frequently report insufficient education early in their disease trajectory, often expressed by “if only I'd known earlier.” The aim was to develop and implement a sustainable, modular Kidney School integrated into routine renal care, addressing patient educational needs across all stages of CKD. Our motto is “Enhanced knowledge fosters confidence and reassurance”.
Method: The Lovisenberg Kidney School was designed as a modular patient education programme rather than a single comprehensive course. The programme consists of short, stage-specific modules aligned with CKD progression and treatment pathways. Patients and their significant others are invited at any stage of the disease for stage-appropriate modules. The Kidney School now offers 5 modules; Stage CKD 3-4, Stage 4-5, Stage 5, pre-Tx, and Life after Tx, with a combination of classroom learning and hands-on experience. Educational topics include disease understanding, treatment options and medication, nutrition, physical exercise, self-management and mental health. Key learning objectives: expanding knowledge within major relevant topics, better health literacy and ability for shared decision-making, improved adherence, sense of security, and compassionate care, throughout the CKD trajectory.
Results: The modular Kidney School is successful and a well-established practice. Participant feedback and attendance patterns indicate increased patient-reported confidence and sense of security, improved overall knowledge and understanding of CKD, treatment options, and ability to participate in shared decision-making. They report highly perceived usefulness of the various contents within the modules, and there is a strong re-attendance to new modules, suggesting sustained engagement over time.
Conclusion: A modular, stage-adaptive patient education programme represents a feasible and sustainable model for structured patient education and learning in renal care. Providing education adapted to the various stages of kidney disease, and in alignment with patients’ evolving needs and preferences, the programme supports their learning outcomes throughout the CKD trajectory.

Other / Miscellaneous (P060-P080)

P072

Pre-pregnancy body mass index and perinatal outcomes in women with preeclampsia: impact on gestational age at delivery and small-for-gestational-age neonates

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Objective: Maternal obesity is a recognized risk factor for preeclampsia (PE) and may affect obstetric and neonatal outcomes. However, whether pre-pregnancy body mass index (BMI) influences gestational age at delivery or fetal growth among women who develop PE remains unclear. We assessed the association of pre-pregnancy BMI with earlier delivery and birth weight below the 10th percentile in women with PE.
Method: In this prospective observational study at a tertiary care center, women with a history of PE undergoing nephrology screening since 2019 were stratified by pre-pregnancy BMI: <19 kg/m² (n=24), 19–24.9 (n=130), 25–29.9 (n=121), 30–39.9 (n=103), and ≥40 (n=26). Outcomes were gestational age at delivery, used as an indirect marker of PE severity, and birth weight <10th percentile. Non-parametric variables are reported as median (IQR); categorical variables were compared by chi-square test.
Results: Among 404 women, median gestational age at delivery was 36 weeks in all BMI categories (IQR 32–38), likely reflecting referral of severe cases in this tertiary setting. No association was found between BMI category and gestational age at delivery (p=0.996). Among 401 neonates with available birth data, 171 (42.6%) had birth weight <10th percentile. Rates were similar across BMI groups: 50.0%, 46.5%, 39.5%, 41.8%, and 34.6%, respectively, with no significant association between BMI and birth weight <10th percentile (χ^2=2.521; p=0.641).
Conclusion: Although overweight and obesity increase the risk of PE, pre-pregnancy BMI was not associated with gestational age at delivery or small-for-gestational-age neonates among women who developed PE. BMI may contribute to PE onset but does not appear to substantially modulate prematurity or fetal growth restriction once PE occurs. Further studies are warranted to better characterize the interaction between pre-pregnancy BMI, hypertensive disorders of pregnancy, and perinatal outcomes.

Other / Miscellaneous (P060-P080)

P073

Trends and Collaborative Networks in Renal Nutrition Research for Chronic Kidney Disease in Asia: A Bibliometric Analysis (2005-2024)

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Objective: Chronic kidney disease (CKD) represents a growing public health challenge in Asia, highlighting the importance of effective renal nutrition strategies. This study aimed to map research trends, thematic focus, and collaboration networks in renal nutrition research related to CKD across Asia.
Method: A bibliometric analysis was conducted to evaluate the landscape of renal nutrition research related to CKD in Asia from January 2005 to December 2024. Literature was retrieved from Scopus and Web of Science Core Collection databases using targeted keywords, and English-language articles only. After deduplication using Zotero and relevance screening, the retrieved publications were analyzed using CiteSpace to assess publication trends, journal impact, keyword co-occurrence, thematic evolution, and inter-institutional collaboration networks.
Results: A total of 387 publications were included. Output rose steadily after 2013, peaked in 2021, and remained high through 2024, with citation peaks in 2013, 2018, and 2021. Among Asian contributors, India and Taiwan each accounted for 12.4% of publications, while non-Asian country including the United States (17.6%) and Turkey (17.1%) appeared mainly as collaborative co-authors. Malaysian institutions were central to collaboration networks. The dominant themes focused on dialysis nutrition, protein-energy wasting, and nutritional assessment.
Conclusion: Renal nutrition research related to CKD in Asia has expanded substantially over the past two decades but remains concentrated within a limited research base. Addressing gaps in early-stage CKD nutrition research, strengthening region-specific evidence, and enhancing research capacity in underrepresented settings will be essential to advance equitable and effective CKD care across diverse Asian health systems.

Other / Miscellaneous (P060-P080)

P074

Development of a renal dietetics training course accreditation framework

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Objective: Accreditation of healthcare courses is regarded as a marker of excellence and a way of improving patient outcomes. It supports consistent training standards, ensures curricula evolve, and promotes effective learning. Although renal dietetic courses exist within some accredited associations, access is limited to certain countries due to the costs and practicalities of attending a course abroad. Many countries have the expertise to deliver high-quality renal dietetic education but seek recognised external accreditation to demonstrate credibility and rigour.
Local training is important in renal dietetics because dietary patterns, food availability, and cultural practices vary across countries. Locally delivered programmes ensure dietitians receive education tailored to their population's needs. An accreditation system capable of evaluating courses internationally becomes essential. Accrediting an institution's own course also strengthens confidence within renal dietetic teams by recognising the quality of their teaching rather than relying on external providers.
A renal healthcare association with more than 20 years of experience accrediting renal nursing courses had developed a comprehensive nursing curriculum, now in its third edition. Building on this established work, demand emerged for a renal dietetics accreditation pathway, initially prompted by a dialysis provider whose accredited renal nursing programme led them to seek equivalent recognition for their renal dietetic course.
Method: Given the long-standing success of the renal nursing accreditation framework—which has resulted in multiple accreditations—the renal dietetics framework was developed by adapting the nursing model. A renal dietitian played a key role in designing the new framework to ensure alignment with dietetic competencies, scope of practice, and educational needs.
Results: The 1st accreditation of a renal dietetic course using this framework is currently under way and is expected to be completed by July 2026.
Conclusion: Accreditation supports the development of high-quality, locally relevant training. It also helps retain teaching expertise within each country, strengthening provider confidence and enhancing the learning experience for renal dietitians undertaking renal-specific education.

Other / Miscellaneous (P060-P080)

P075

Lactobacillus acidophilus La-05 enriched yogurt modulates oxidative stress parameters in a preclinical model of chronic kidney disease

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Objective: The gut–kidney axis plays a crucial role in the pathophysiology of chronic kidney disease (CKD). However, the therapeutic potential of probiotics in this context remains uncertain. Therefore, this study explored the effects of probiotic yogurt and yogurt on plasma antioxidant enzyme activity, kidney and colon oxidative stress, colonic gene expression, and kidney morphology in a preclinical model of CKD.
Method: Male *Wistar* rats were divided into 5/6 nephrectomy (Nx), yogurt (NxY), and probiotic yogurt (NxPY) (n=8/group), receiving it by gavage for 8 weeks. Probiotic yogurt was enriched with *L. acidophilus* La-05 (108–10 CFU/mL) (ethics approval 2304150818). Glutathione peroxidase (GPx) activity was measured in plasma, and thiobarbituric acid reactive species (TBARS) and protein carbonyls in kidney and colon. Colon nuclear factor kappa B (*NfκB*), nuclear factor erythroid 2–related factor 2 *(Nrf2),* and toll-like receptor 4 (*TLR4*) mRNA by RT-qPCR. Glomerular diameter was assessed by histology.
Results: Both NxPY and NxY groups reduced GPx plasmatic activity compared to the Nx group (13.21±13.16 *vs.* 96.24±47.22, p=0.0320; 13.37±20.98 *vs.* 96.24±47.22 nmol/mL, p=0.0103). The NxPY group reduced colon carbonyl proteins compared to the Nx group (9.63±6.49 *vs.* 37.38±27.37 nmol/mg, p=0.0234). The NxPY group showed no difference in TLR4, *NfκB* or *Nrf2* colon gene expression; the NxY group increased *TLR4* mRNA compared to the Nx group (2.23±1.60 *vs.* 0.66±0.45, p=0.0327). No changes were observed in renal protein carbonylation or glomerular diameters. Kidney and colon TBARS levels also showed no significant difference between the groups.
Conclusion: *L. acidophilus* La-5–enriched yogurt attenuated oxidative stress, reducing colonic protein carbonyls, leading to a compensatory decrease in plasma GPx activity in a preclinical CKD model.

Other / Miscellaneous (P060-P080)

P076

Ten-year trends (2012-2022) in obesity and malnutrition prevalence in patients receiving haemodialysis and peritoneal dialysis: an exploratory analysis in a UK hospital

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Objective: Obesity and malnutrition are clinically significant nutrition-related concerns in people receiving dialysis. For those with kidney failure, obesity can limit access to kidney transplantation, while malnutrition is a predictor of morbidity and mortality. In the United States, obesity appears more prevalent than malnutrition in CKD, with obesity affecting an estimated 39% of people with kidney failure and trends increasing. However, UK data is limited. This audit aimed to determine the prevalence of obesity and evaluate the 10-year trends in both obesity and malnutrition in people receiving dialysis in a large UK teaching hospital.
Method: A retrospective audit was conducted for adults receiving haemodialysis (HD) or peritoneal dialysis (PD) between Jan 2012 to Dec 2022. Data was collected prospectively during the Renal Dietitians' annual nutritional assessment and included body-mass index (based on dry weight) and SGA score. Linear regression determined trends in the proportion of people with obesity (defined as a BMI of ≥30kg/m^2) and malnutrition (SGA B or C).
Results: 499 people formed the HD cohort in 2012, increasing to 740 in 2022. 131 people formed the PD cohort in 2012; 106 in 2022. In 2022, 25.2% of adults receiving HD lived with obesity, with no significant change over 10 years (slope 0.02%/year; 95% CI -0.46-0.43). Obesity prevalence in people on PD was 21% in 2022, with a non-significant downward trend (slope -0.45%/year; 95% CI -1.5-0.61). In HD, malnutrition trend increased significantly to 21.6% in 2022 (slope 0.77%/year, p=0.0125) though PD showed no significant change - prevalence 15% in 2022 (slope 0.12%/year, p=0.79).
Conclusion: These findings highlight a high obesity prevalence in this dialysis cohort, comparable to, or exceeding, local London estimates (21%, Health Survey for England, 2024). The stable obesity trends in this cohort, contrast with a slight rise nationally over the past decade. Obesity was more prevalent than malnutrition in each dialysis modality. However, the malnutrition prevalence, and rising trend in people on HD, highlight the ongoing risk. The findings emphasise the expanding need for integrated, personalised nutrition interventions and adaptation of renal dietetic services to address both of these modifiable risk factors.

Other / Miscellaneous (P060-P080)

P077

Effect of an Educational Program on Dietary Adherence, Nutritional Knowledge, and Quality of Life in Patients with Chronic Kidney Disease

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Objective: To evaluate the effect of a multidisciplinary educational program on dietary adherence, nutritional knowledge, and quality of life in patients with Chronic Kidney Disease (CKD) in stages of pre-dialysis, peritoneal dialysis, and hemodialysis at the INCMNSZ
Method: A randomized clinical trial was conducted with 43 patients divided into four groups: dialysis control, dialysis intervention, pre-dialysis control, and pre-dialysis intervention. The intervention consisted of five educational sessions covering protein intake, phosphorus, sodium/fluids, potassium, and nutritional myths. Assessment tools included the CONURE questionnaire for nutritional knowledge, a 3-day food record and the Renal Adherence Attitudes Questionnaire (RAAQ) for dietary adherence, and the KDQOL questionnaire for quality of life, applied before and after the intervention.
Results: The pre-dialysis intervention group showed significant improvements in nutritional knowledge (pre: 47 vs. post: 68 points, $p<0.002$), protein consumption (pre: 69.3 g/d vs. post: 54.4 g/d, $p=0.017$), and quality of life scores (pre: 65.6 vs. post: 72.3 points, $p=0.025$). The dialysis intervention group also demonstrated significant improvements in nutritional knowledge (pre: 55 vs. post: 69.5 points, $p=0.014$). Furthermore, both pre-dialysis and dialysis intervention groups achieved a significant increase in their RAAQ dietary adherence scores
Conclusion: The educational program successfully improved nutritional knowledge and dietary adherence in both intervention groups. However, a significant improvement in quality of life was only observed in the pre-dialysis intervention group.

Other / Miscellaneous (P060-P080)

P078

Acceptability of Recipes to Improve Diet Quality in Patients with Chronic Kidney Disease

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Objective: To evaluate the acceptability of recipes intended to improve diet quality in patients with CKD
Method: A total of 30 plant-based recipes were developed to promote a healthy dietary pattern emphasizing fruits, vegetables, and legumes. After an initial tasting session, 20 recipes (salads, soups, main dishes, desserts, and sauces) were selected and presented to a focus group of CKD patients and control subjects. Participants evaluated each dish using a 5-point Likert scale (1 = strongly dislike, 5 = strongly like) through an acceptability questionnaire (7–35 points), which assessed appearance, aroma, taste, odor, texture, ease of preparation, ingredient accessibility, and feasibility of incorporation into the family diet. Participants were encouraged to provide feedback and taste all dishes.
Results:

Dishes	Score (Average ± DE)	Dishes	Score (Average ± DE)
Sweet carrot salad	32.3 ± 3.6	Roasted cabbage	28.7 ± 6.7
Nopal salad	3.1 ± 3.8	Refried beans	34.0 ± 1.4
Healthy bowl	32.4 ± 4.1	Carrot pancakes	33.2 ± 2.4
Bell pepper and corn cream soup	31.2 ± 4.3	Pink hotcakes	31.8 ± 3.5
Chickpea ceviche	32.2 ± 2.8	mandarin marmalade	31.4 ± 5.3
Pozolillo	31.3 ± 4.9	Chamoy sauce	30.9 ± 6.7
Lentil meatballs	32.3 ± 3.8	Chili with peanuts	32.1 ± 4.5
Lentil picadillo	32.7 ± 3.5	Jalapeño sauce	31.8 ± 8.9
Soy pastor-style	27.4 ± 5.2	Cilantro dressing	33.0 ± 2.4
Beef salpicón	31.8 ± 2.7	Watermelon infusion	33.0 ± 3.9
Enchiladas	31.8 ± 5.8		

Conclusion: Overall acceptability was high. The lowest scores were for soy-based pastor-style and roasted cabbage, while the highest were for refried beans, carrot pancakes, and nopal salad. Tailored educational materials may improve adherence and dietary quality.

Other / Miscellaneous (P060-P080)

P079

Development of homemade oral nutrition supplements for individuals with CKD on hemodialysis: nutrient composition and sensory evaluation

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Objective: To develop homemade oral nutrition supplements for individuals with CKD on hemodialysis (HD) and to evaluate their nutrient composition and sensory acceptability.
Method: Ingredients were selected and four prototype formulations were developed. These were preliminarily evaluated by 8–10 control subjects (odor, taste, consistency, texture) to define the final recipe. A sensory evaluation was then conducted in 32 participants (19 CKD patients and 13 controls), who assessed a homemade supplement (HS) and a commercial formula (CF) (20 mL each) using a 5-point hedonic scale (odor, taste, consistency, appearance, overall acceptability where 1= strongly dislike 5= strongly like. Finally, bromatological analysis of the selected formulation determined energy, carbohydrates, protein, and lipids.
Results: The HS provided 88 kcal (369 kJ), 5 g protein, 4 g fat, 8 g carbohydrates, 11 g sugars, and 1 g fiber, whereas the CF provided 180 kcal (752 kJ), 8.1 g protein, 9.7 g fat, 14.7 g carbohydrates, no reported sugars, and 1.2 g fiber.

	HS	**CF**	***P***
Odor	3.72 ± 1.14	3.53 ± 1.29	0.506
Taste	3.75 ± 1.21	3.63 ± 1.12	0.654
Consistency	3.25 ± 1.34	4.09 ± 0.99	0.004
Appearance	3.56 ± 1.29	3.63 ± 1.21	0.854
Overall acceptability	3.69 ± 1.12	3.59 ± 1.07	0.735
total score	17.97 ± 5.34	18.47 ± 4.46	0.670
total score			
Patients (n=21)	17.2 ± 6.34*	19.3 ± 4.97	
Control group (n= 9)	19.2 ± 2.28	16.7 ± 2.68	

* *P <0.05 vs CF*

Conclusion: Overall, the HS showed good acceptability in both groups. In terms of overall appearance, it received higher ratings compared to the CF. Consistency was the lowest-rated attribute; however, this aspect improved with appropriate preparation instructions and nutrition education. Therefore, the HS is proposed as an accessible and replicable strategy for implementation in HD patients.

Other / Miscellaneous (P060-P080)

P080

The Humoral Response to SARS-COV-2 Vaccine in Hemodialysis Patients is Correlated with Nutritional Status

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Objective: Hemodialysis patients are at risk for poor nutritional status. This study aimed to determine whether poor nutritional status during vaccination with SARS-COV-2 was associated with impaired vaccine responses.
Method: This retrospective single-center study was conducted among hemodialysis patients treated at RMC (Rabin Medical Center). A total of two doses of BNT162b2 vaccine had been administered to each patient, 21 days apart. The demographic data and blood test results were collected from the medical records. Quantitative measurement of IgG antibodies against the Spike protein (anti-S antibodies) was performed using the SARS-CoV-2 IgG II Quant (Abbott©) assay. In order to assess nutrition status, we used the Malnutrition Inflammation Score (MIS) at the time of the first vaccine dose.
Results: A total of 115 hemodialysis patients were included in the study. The average age was 72.2 years, 49 (42.6%)
were female, and 67 (57%) had diabetes mellitus. In 43/115 (37.3%) patients, moderate to severe malnutrition was detected.
Patients with moderate to severe malnutrition had lower log-transformed anti-S antibodies than those with adequate nutrition (3.25 ± 0.72 vs 2.91 ± 0.83, respectively, p= 0.024). MIS remained inversely associated with SARS-COV-2 antibody response in a multivariable analysis, adjusting for age, gender and KT/V,
[B; –0.066 (-0.117 to Berlin-0.015)].
Conclusion: Among hemodialysis patients, moderate to severe malnutrition is associated with reduced humoral responses to SARS-COV-2 vaccination.

Big Data, AI and Omics (P081-P084)

P081

Machine Learning Models and Key Mortality Predictors in HD patients

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Objective: To evaluate the association of dietary intake, clinical and nutritional parameters with mortality in hemodialysis (HD) patients and to compare the predictive performance of machine learning (ML) models.
Method: 582 patients on HD from 38 dialysis units were enrolled. Demographic, clinical, nutritional, laboratory and physical activity data were collected. A Food Frequency Questionnaire was applied. Patients were followed for 80 months and classified as survivors or deceased. Three ML algorithms Random Forest, Logistic Regression, and XGBoost - were trained to predict mortality. Model performance was evaluated using accuracy, F1 Score, AUC, recall and accuracy and SHAP analysis to identify key predictors.
Results: Random Forest appears to be the best-performing model, showing the highest AUC (0.788), an Accuracy of 0.633, a F1 Score of 0.733, a recall of 0.868 and a precision of 0.643 in predicting mortality within the 80-month follow-up period. Logistic Regression and XGBoost showed the same accuracy (0.641) and an AUC and F1 Score of 0.782/0.757 and 0.734/0.712 respectively. Logistic regression presented a recall of 0.853 and a precision of 0.644 whereas XGBoost had a lower recall (0.765) but a higher precision (0.667).
The 10 most important features of the Tuned Random Forest model associated with mortality were: HD vintage (0.127); Age-adjusted Charlson Index (0.031); creatinine (0.022); leukocites (0.019); Product Calcium/Phosphorus (0.016); serum phosphorus (0.016); water intake (0.015); ferritin (0.014); overhydration (0.014) and diastolic blood pressure (BP) (0.014).
Based on correlation with SHAP values, higher values of the following parameters tend to decrease the predicted mortality: HD vintage, serum creatinine, serum phosphorus, diastolic BP, ferritin and Calcium/Phosphorus product. On the contrary, increased levels of the following tend to increase mortality: age-adjusted Charlson comorbidity index, leukocites, overhydration and water intake.
Conclusion: This data shows that modifiable and non-modifiable parameters significantly influence mortality risk in HD patients. ML models, particularly Random Forest, effectively predict mortality by integrating multidimensional data, supporting their potential role in personalized risk stratification and management.

Big Data, AI and Omics (P081-P084)

P082

Dietary Guidance by a Chatbot Recommender Utilizing LLM and a Causal Graph-Augmented Framework

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Objective: Nutrition is critical to a number of chronic conditions, including chronic kidney disease (CKD), cardiovascular disease (CVD), and diabetes (DM). A number of software tools are available to improve nutrition but current applications often experience knowledge gaps, generating hallucinatory results, and database limitations. To address these issues, we introduced a chatbot food recommender, focusing on CKD, CVD, and DM.
Method: A full-stack flask-based web framework with a multimodal User Interface for image-based dietary input was constructed. A Retrieval-Augmented Generation pipeline was implemented utilizing a Facebook AI Similarity Search vector database composed of recipes webscraped from allrecipes.com. A tripartite Causal Graph with semantic edge classification was integrated into the database. Recommendations were generated via the GPT-4.1 model. Two evaluations were conducted: a comparative benchmarking analysis between ChatGPT 4.0 and the chatbot using Gemini 3 as LLM-as-a-judge and a comparative test case study where Gemini 3 AI evaluated identical queries using selected menu images, scoring them out of 10.
Results: In a controlled pilot comparative evaluation, our recommender chatbot achieved a 95% win rate (38 out of 40 iterations). In the test case study, the chatbot averaged 7.625 compared to 7.25 from ChatGPT. For run time, ChatGPT averaged 26.2948 seconds while our recommender chatbot averaged 0.0009 seconds, almost 30,000 times faster. Responses were evaluated with higher Personalization and Explainability by Gemini 3.
Conclusion: Overall, the chatbot achieved superior performance, delivering explainable, healthy, disease-aligned guidance without API quote constraints, memory footprint, and long processing time, saving time, cost, and resources. We envision that the recommender chatbot can be utilized in the real world to increase health awareness for users and help them to live a healthier lifestyle. Future works can explore including more complex clinical contexts, investigating RAG with dynamic up-to-date nutritional data, and incorporating structured follow-up questions ability. Further research is also required to evaluate out-of-distribution performance and scalability across unstructured dietary datasets where causal mapping is not yet established

Big Data, AI and Omics (P081-P084)

P083

Retinal Imaging-Based CKD Risk Stratification Identifies Individuals With Enriched Modifiable Cardiometabolic Risk Burden

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Objective: Retinal imaging provides a non-invasive window into systemic microvascular health and has emerged as a promising tool for chronic kidney disease (CKD) risk prediction. However, whether retinal imaging–based CKD risk stratification can also identify individuals with a high burden of modifiable cardiometabolic risk factors remains unclear.
Method: A retinal CKD risk score (RetiCKD) was generated using a deep learning–derived retinal biomarker combined with age and sex. Among UK Biobank participants with retinal imaging, individuals with baseline CKD, defined as eGFR <60 mL/min/1.73 m², albuminuria, or a history of CKD, were excluded. The final cohort included 60,044 participants. Participants were categorized into quartiles of RetiCKD. Metabolic risk factors included obesity, hypertension, diabetes, and dyslipidemia. Metabolic risk burden was defined as the presence of ≥2 of these factors. Associations between RetiCKD quartiles and metabolic risk factors were evaluated using Poisson regression.
Results: Higher RetiCKD quartiles were associated with a progressively greater burden of metabolic risk factors. In the complete-case cohort (N=33,176), the prevalence of ≥2 metabolic risk factors increased from 23.0% in the lowest quartile to 43.5% in the highest quartile (*P* for trend <0.001). Compared with the lowest quartile, adjusted prevalence ratios for ≥2 metabolic risk factors were 1.32 (95% CI 1.25–1.40) in Q2, 1.49 (1.40–1.60) in Q3, and 1.55 (1.44–1.68) in Q4. Higher retinal CKD risk was also associated with obesity, hypertension, and diabetes. Dyslipidemia showed a weaker association without a significant linear trend. In sensitivity analyses, higher RetiCKD quartiles were additionally associated with uncontrolled hypertension and uncontrolled glycemia.
Conclusion: Retinal imaging–based CKD risk stratification identifies individuals with a high burden of modifiable cardiometabolic risk factors, suggesting a potential role for retinal imaging in risk-based preventive screening.

Big Data, AI and Omics (P081-P084)

P084

LLM-Based Expansion of Available, Personalized Nutritional Information on Foods for People with Chronic Kidney Disease (CKD)

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Objective: Chronic kidney disease (CKD) necessitates precise dietary management of nutrients such as potassium, phosphorus, and sodium. Generic nutrition-tracking applications do not address CKD-specific requirements, and national food composition databases often provide limited coverage. Integrating multiple databases presents challenges, including duplicate entries and inconsistent food naming. Large language models (LLMs) present a potential solution through synonym detection and intelligent cross-database search capabilities.
Method: We developed a system integrating four national food composition databases: BLS (Germany), FNDDS (USA), Frida (Denmark), and Ciqual (France), with an LLM-based agentic orchestration layer using the Model Context Protocol (MCP). A three-stage pipeline performs synonym detection against the primary German database (BLS), cross-database match selection for items absent from BLS, and deterministic nutrient resolution via a dedicated lookup tool. A human-in-the-loop curation workflow ensures quality control before results are committed. The performance of both agentic stages was evaluated on 100 frequently searched terms that did not return results in the previous BLS-only database (79 were available in BLS under a different name or spelling, 21 were absent). Usage data is based on analytics from the app “Mizu – Your CKD companion,” which includes a food diary feature based on BLS.
Results: The synonym detection stage correctly classified 91% of items, with a false-positive rate of 8% and a false-negative rate of 1%. For match selection, 95 items returned good matches, 1 returned a bad match, and 4 returned acceptable, but imprecise matches.
Conclusion: LLM-based agentic search provides a practical and extensible solution for cross-database food matching in CKD nutrition tracking. With a human-in-the-loop, it is ready for deployment and can increase the quality of a food database without requiring a large effort from the database maintainer. The modular architecture enables straightforward integration of additional food composition databases, supporting continued expansion of dietary coverage for CKD patients.

Dialysis (HD and PD) (P085-P107)

P085

An assessment of dietary fibre intake and bowel health in Irish peritoneal dialysis patients

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Objective: Constipation is an important cause of dialysis technique failure and poor dialysis efficacy in patients on PD. Causes of constipation in this patient group are multifactorial, including dietary restrictions, fluid restrictions, reduced physical activity and medications. Laxatives are routinely required to prevent and treat constipation. This study aimed to identify bowel habits in Irish PD patients and whether dietary fibre intake is adequate.
Method: Ethical approval for this prospective observational study was granted by the Clinical Research Ethics Committee of the Cork teaching Hospitals in April 2023. All adult patients attending the PD unit in Cork University Hospital were invited to participate. Participants were asked to complete a bowel health questionnaire and a 3 day food diary. The renal dietitian collated the results and inputted the dietary data into a software programme (Nutritics Diet Analysis Software) to calculate an average daily dietary fibre, energy and protein intake.
Results: 14 patients completed the study (57% male, average age 62 years, prevalence of diabetes 21%). The mean (SD) daily dietary fibre intake was 15.6 (4.1) g/day, (range 11.2-24.6g/day). This is lower than the results of the Irish National Adult Nutrition Survey (2011) which was 19.2(8) g/day. 64% patients were classified as having constipation (based on Rome III Criteria). Despite laxative usage in 64% respondents, 50% patients still reported straining, incomplete emptying of bowels and hard stools, with 28% patients not having a bowel motion every day. Setting “4” on the Bristol Stool Form Scale as the “ideal “stool form, 64 % patients reported this rating. 43% patients reported a cost for laxatives, with an average monthly cost of 22 euros. The mean (SD) energy intake was 1587 (424) kcals/day. The mean (SD) protein intake was 69g (14.2).
Conclusion: Inadequate dietary fibre intake and features of constipation are reported in this study. There is an opportunity to improve bowel health by increasing dietary fibre intake. Renal dietitians have a key role in suggesting strategies. Education resources about fibre should be provided to the patients. This may alleviate symptoms of constipation and thereby improve dialysis efficacy and positively impact quality of life.

Dialysis (HD and PD) (P085-P107)

P086

Probiotics-Nutrient Intervention on Nutrition, Gut Microbiota and SCFAs in Peritoneal Dialysis with Peritonitis

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Objective: To investigate the effects of probiotics combined with nutrients on nutritional status, gut microbiota, and short-chain fatty acids (SCFAs) in peritoneal dialysis (PD) patients with peritonitis.
Method: Prospective, double-blind RCT. 52 PD peritonitis patients were randomized to probiotic-nutrient (PR, n=26) or placebo (PL, n=26) groups. Intervention lasted one month with two-month follow-up. Nutritional markers, microbiota (16S sequencing), and SCFAs (GC-MS) were analyzed.
Results: Baseline: Comparable between groups ($P>0.05$).
Nutrition: Post-intervention, PR group had significantly higher hemoglobin and lower LDL vs. PL ($P<0.05$). Within PR, diastolic BP, hs-CRP, and IL-6 decreased significantly. No significant inter-group differences remained at two months.
Microbiota: Post-intervention β-diversity differed significantly ($P<0.05$). PR group showed increased Bacillota, Streptococcus, and Massiliomicrobiota, and decreased Bacteroidetes, Alistipes, and Phascolarctobacterium ($P<0.05$).
SCFAs: No significant inter-group differences observed ($P>0.05$).
Conclusion: Probiotics with nutrients improved hemoglobin and LDL in PD peritonitis patients, altered gut microbiota composition, but did not significantly change SCFA levels short-term

Dialysis (HD and PD) (P085-P107)

P087

Knowledge, attitudes and practices of chronic dialysis patients regarding dietary consultations: A kap study in a non-urban dialysis unit

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Objective: Regular access to nutritional care is essential for chronic dialysis patients to prevent malnutrition and improve clinical outcomes. However, misconceptions and lack of awareness about dietetic consultations often hinder such care. This study assessed the knowledge, attitudes, and practices (KAP) of dialysis patients regarding dietetic consultations in a non-urban dialysis unit.
Method: In July 2024, a descriptive cross-sectional study was conducted among 30 chronic dialysis patients. Nutritional KAP were assessed using an interviewer-assisted questionnaire, along with demographic and biological data extracted from medical records.
Results: The mean age of participants was 66 years (SD: 12), and 53% lived in tribal areas. Although 77% had attended at least one dietetic consultation, the average time since the last consultation was 3 years. Only 30% were aware of their eligibility for two consultations per year, and 60% were unaware that transportation costs were covered for in-session consultations. Moreover, only 52% correctly identified foods high in hidden salt, and 83% were unaware of the toxicity of starfruit. Finally, 47% considered that they did not need a consultation, highlighting a gap between perceived and actual needs.
Conclusion: Given the importance of lifestyle factors in the long-term management of dialysis patients, this study emphasizes the need for better nutritional education and family involvement. The identified barriers call for targeted, multidisciplinary, and context-adapted educational interventions. It is also recommended to organize regular “diet staff meetings” bringing together healthcare teams from remote units and dialysis dietitians to share practices, harmonize messages, and strengthen territorial coordination.

Dialysis (HD and PD) (P085-P107)

P088

The Association between Bioelectrical Impedance Phase Angle and Sarcopenic Obesity in Patients Undergoing Maintenance Hemodialysis

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Objective: This study aimed to examine the association between PhA and sarcopenic obesity in a cohort of MHD patients, evaluating the potential discriminative capability of PA.
Method: In this cross-sectional study, data from 245 MHD patients (139 men and 106 women, mean age 62 years) were assessed. Sarcopenia was defined using the Asian Working Group on Sarcopenia criteria, incorporating reduced handgrip strength (men < 28 kg; women < 18kg), low muscle mass (appendicular skeletal muscle mass index/height [m]/height [m] < 7.0 kg/m^2 for men and <5.7 kg/m^2 for women). Obesity was classified by body fat percentage (>25% for men, >35% for women) via BIA. Sarcopenic obesity was diagnosed in patients meeting criteria for both. PhA was measured at 50 kHz using a standardized BIA device. Patients were categorized into four groups: sarcopenia-/obesity- (reference group), sarcopenia alone, obesity alone, and sarcopenia obesity group. Multivariable logistic regression analysis was used to determine the independent association between PhA and sarcopenic obesity, adjusting for age, sex, dialysis vintage, and serum albumin.
Results: The presence of sarcopenia-/obesity- , sarcopenia alone, obesity alone, and sarcopenic obesity were 43.67% (n=107), 21.63% (n=53), 17.96% (n=44), and 16.74% (n=41), respectively. Patients with sarcopenic obesity exhibited a significantly lower mean PA compared to the reference group (4.2° ± 0.7° vs 5.8° ± 1.1°, P < 0.001). Compared to the reference group, the odds ratio (95% confidence interval) for the sarcopenia alone, obesity alone, and sarcopenic obesity group were 1.23 (0.92-1.42), 1.29 (0.98-1.44), and 1.82 (1.55-2.07), respectively. A PA cutoff value of ≤ 4.5° showed 82% sensitivity and 79% specificity for identifying sarcopenic obesity.
Conclusion: Lower PA is strongly and independently associated with sarcopenic obesity in MHD patients, supporting its potential utility in the management of MHD patients.

Dialysis (HD and PD) (P085-P107)

P089

Protein-Energy Wasting and Hypophagia in Hemodialysis: The Role of Dietary Intake and Body Composition in Nutritional Risk Stratification

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Objective: Protein–Energy Wasting (PEW) is a frequent and clinically relevant complication in patients undergoing maintenance hemodialysis, strongly associated with poor quality of life and adverse outcomes. Hypophagia, defined as inadequate energy and/or protein intake, represents a potentially modifiable contributor to PEW, but its relationship with body composition alterations remains incompletely characterized
Method: In this prospective observational study, adult patients undergoing chronic hemodialysis were enrolled between 2020 and 2021. PEW was diagnosed according to ISRNM criteria. Dietary energy and protein intake were assessed using 3-day food diaries. Hypophagia was defined as energy intake <30 kcal/kg/day and/or protein intake <1.2 g/kg/day. Post-dialysis body composition was evaluated by multifrequency bioelectrical impedance analysis, including phase angle, fat-free mass index (FFMI), fat mass index (FMI), intracellular water (ICW), ICW/height², and ECW/ICW ratio. Hospitalizations and mortality were recorded at 12 and 24 months.
Results: Seventy-five patients were included; 26 (35%) were diagnosed with PEW and 47 (63%) with hypophagia. Patients with PEW showed significantly lower phase angle ($p = 0.039$), FFMI and FMI (both $p < 0.001$), total body water ($p = 0.010$), ICW ($p = 0.001$), and ICW/height² ($p < 0.001$). Similarly, hypophagic patients exhibited significantly reduced FFMI, FMI, BMI, and ICW/height² (all $p < 0.01$). Multivariate analysis identified FMI [OR 0.54 (0.33–0.87), $p = 0.011$], dietary energy intake [OR 1.00 (0.99–1.00), $p = 0.039$], and normalized protein catabolic rate [OR 0.00 (0.00–0.21), $p = 0.014$] as independent predictors of PEW. Although differences in hospitalization and mortality were not statistically significant, PEW and/or hypophagia were present in 70% of hospitalized patients and 58% of deaths.
Conclusion: PEW and hypophagia are highly prevalent in hemodialysis patients and are associated with marked impairments in both muscle and fat compartments. Integrating dietary assessment with body composition analysis may improve early identification of nutritional risk and support targeted nutritional interventions to optimize clinical outcomes.

Dialysis (HD and PD) (P085-P107)

P090

Is it risky to eat during hemodialysis?: a systematic review of studies addressing intradialytic hypotension and dialysis adequacy

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Objective: Studies on the risk of eating during hemodialysis (HD) show conflicting results. This evidence review aimed to systematically determine the impact of eating during HD on hypotension & HD adequacy to guide practice.
Method: Observational, quasi-randomised & randomised controlled trials on adults examining the effect of eating during HD sessions on blood pressure (BP), hypotensive events & HD adequacy were included. Studies comparing HD vs non-HD days, or when food was consumed prior to HD were excluded. PubMed & the Cochrane Register of Clinical Trials were searched for MeSH & title/ abstract terms for eating & HD from January 1990-March 2024. Risk of bias (RoB) was assessed with Joanna Briggs Institute tools. Intradialytic hypotension was defined as SBP drop ≥20?mmHg, mean arterial BP drop ≥10?mmHg or SBP<90mmHg & HD adequacy as Kt/V>1.2 or URR>65%.
Results: 20 studies in 1320 participants included 3 randomised controlled trials (n=146), 8 crossover/non-randomised trials (n=399) & 9 observational studies (n=755). The overall quality of evidence was of low certainty with 15/20 studies with moderate to high RoB. From 18 studies on hypotension, results were mixed with 9 (50%) studies demonstrating significant BP changes with eating compared to fasting. However, there was moderate quality evidence to support no clinical impact of eating during HD on intradialytic hypotension. In 14/18 studies BP changes did not meet the definition of hypotension. Eating during HD significantly reduced Kt/V or URR in 6/8 studies, however adequacy did not fall below the threshold level in any studies.
Conclusion: These results demonstrate that eating on HD for most people is low risk, as BP & HD adequacy changes with eating did not result in intradialytic hypotension or unacceptable dialysis adequacy. However, the overall quality of the evidence was low. If susceptible to BP changes, eating a small meal in the first 30 mins of HD is preferred, with monitoring for adverse effects.

Dialysis (HD and PD) (P085-P107)

P091

Is it uraemia or an eating disorder? A scoping review of adults on maintenance dialysis living with eating disorders

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Objective: Dietary and fluid restrictions, frequent weight monitoring, symptom overlap with kidney failure and substantial psychological burden create a uniquely high-risk environment for adults receiving dialysis. These factors may exacerbate pre-existing disordered eating or contribute to the relapse or new onset of eating disorders (ED). This scoping review aimed to explore how adults on maintenance dialysis with EDs are identified and treated.
Method: MEDLINE, EMBASE, CINAHL, APA PsychINFO, Web of Science and ProQuest Dissertations & Theses Global were searched from inception to March 2025. Eligible studies involved adults receiving maintenance dialysis with a diagnosis of an ED, across all study designs. Title and abstract screening were completed by all reviewers, with full-text screening conducted independently. Data were extracted and synthesised narratively across three domains: screening and identification, incidence and prevalence, and clinical presentation and treatment.
Results: Thirty-eight studies were included: case studies (n=25), original research (n=6), reviews (n=4) and one letter to the editor. Reported EDs included pica (n=20), anorexia nervosa (AN, n=12) and bulimia nervosa (BN, n=2). One study reported dialysis incidence among adults with AN, increasing to 8% after 15 years of living with AN. Prevalence data were limited and focused primarily on pica (prevalence: 16-42%), one study reported a 5.1% prevalence of BN in adults on dialysis. Case studies demonstrated complex presentations involving profound malnutrition and electrolyte disturbances. Details of ED treatment were limited and variable. Reported management involved multidisciplinary teams, dietary intervention, modification of dialysis prescriptions, psychological and psychiatric care. Outcomes of treatment ranged from resolution to relapse and mortality.
Conclusion: The literature describing the identification and treatment of adults on dialysis with EDs is sparse and dominated by case studies. Robust epidemiological research, dialysis-appropriate screening tools and evaluations of ED treatment models in the dialysis population are urgently needed to inform the development clinical guidelines and improve care for this vulnerable population.

Dialysis (HD and PD) (P085-P107)

P092

Effect of an oral aminoacids supplement on nutritional, inflammatory and functional parameters in hemodialysis patients: A 6-month prospective randomized controlled study

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Objective: Protein-energy wasting (PEW) and chronic inflammation are highly prevalent in patients undergoing hemodilaysis (HD) and are strongly associated with increased morbidity and mortality. Aminoacids (AA) losses in HD sessions is another factor of malnutrition. Targeted nutritional supplementation represents a potential strategy to improve these detrimental clinical outcomes.
The objective of this study is to evaluate the effect of a 6-month supplementation with 150 mL of an AA solution (RENORAL®) bringing 13 g of proteins given orally at each HD session on body composition, inflammatory markers, funtionnal capacity and quality of life in chronic HD patients
Method: This was a prospective, randomized, controlled study involving 40 chronic HD patients, randomized into two groups (n=20 Renoral®); n=20 Control). Patients were followed for six months, with assessments conducted at baseline, month 3, and month 6. Primary endpoints included changes in lean body mass, handgrip strength, and C-reactive protein (CRP). Secondary endpoints included serum albumin, the Erythropoietin Resistance Index (ERI), dialysis adequacy (Kt/V), and quality of life (QoL) scores.
Results: At 6 months, the Renoral® group demonstrated significant improvements compared to baseline and the control group. Key findings included an increase in lean mass (18.65 kg to 20.37 kg; +9%), a reduction in fat mass (6.82 kg to 5.22 kg), and a marked improvement in handgrip strength (24.13 kg to 28.58 kg; +18%). A substantial reduction in CRP was observed in the Renoral® group (10.19 mg/L to 6.22 mg/L), contrasting with an increase in the control group (4.38 mg/L to 7.64 mg/L). Quality of life also improved in the Renoral® group (92.55 to 95.61) versus the control group (89.83 to 91.44). An initial improvement in ERI was noted in the Renoral® group at 3 months (3520 to 3300).
Conclusion: Six months of Renoral® supplementation was associated with significant and clinically meaningful improvements in nutritional status, inflammatory profile, muscle strength, and quality of life in HD patients.These findings support the use of targeted nutritional supplementation, as an effective strategy to improve key prognostic indicators and overall patient well-being in the maintenance HD population.

Dialysis (HD and PD) (P085-P107)

P093

Which nutritional markers are associated with nutritional status in elderly hemodialyzed patients?

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Objective: The number of elderly people on renal replacement therapy is increasing rapidly worldwide. Protein energy malnutrition is a serious problem in elderly dialysis patients and is associated with increased morbidity and mortality.
The present study was designed to explore which nutritional markers are associated with nutritional status in elderly hemodialyzed patients. Thus, we compare the nutritional biochemical markers, clinical and bioimpedance analysis parameters, among adult and elderly hemodialyzed patients.
Method: This single-center cross-sectional study included 136 stable outpatients (56 adult participants between 18 to 59 years of age, and 80 elderly participants aged ≥60 years), undergoing routine twice-weekly hemodialysis for at least three months. Peripheral venous blood samples were collected just before the start of a mid-week dialysis session. Single-frequency bioimpedance analysis (BIA) were performed post-dialysis. Baseline characteristics of the patients were compared using the Student's t-test for continuous variables and $\chi 2$ test for categorical variables. Pearson's correlation analysis was performed to estimate the correlation between age and various parameters of nutritional. Statistical significance was set at $p < 0.05$.
Results: The majority of the sample was male (64,30%), with a mean age of 61.14 ± 11 years. 112 (82.4%) of the study subjects had hypertension. When the patients were divided into two groups according to age, the mean age of the adult patients was 51.1±7.5 years, while that of the elderly was 68.1±7.5 years. Fat was significantly higher in elderly compared to adult patients (p=0.008). Additionally, in the elderly patients, albumin (p=0.016), phosphorus (p=0.070), protein (p=0.001), and PhA values (p=0.006) were lower than those of adult patients. Fat was positively associated with age (p=0.011). Albumin (p=0.001), phosphorus (p=0.003), protein (p<0.001), glycogen (p=0.009), and PhA (p< 0.001) were negatively correlated to age.
Conclusion: Malnutrition status was more common in elderly HD patients compared with adult patients. Our results indicated that albumin, phosphorus, protein, glycogen, and PhA might be a clinically useful marker for assessing nutritional status in elderly HD patients.

Dialysis (HD and PD) (P085-P107)

P094

Evaluation of a dietary and physiotherapy intervention to improve incidence of Faecal Loading In patients with Kidney Failure (KF) commencing Peritoneal Dialysis (PD) (FLIPD)

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Objective: Rates of acute faecal loading (FL) after commencing peritoneal dialysis (PD) are poorly defined, although chronic constipation affects 11–90% of patients on PD. FL can cause peritonitis, flipped catheters and PD failure, often requiring abdominal imaging and hospitalisation.
Rationale: This study examined rates and characteristics of acute FL, associated complications, and whether early dietetic fibre education, fluid guidance and toileting strategies, alongside pelvic health physiotherapy, reduced FL rates.
Method: Adults starting PD at a metropolitan Queensland hospital were included retrospectively (Dec 2017–Feb 2021) and prospectively (Feb 2021–Feb 2024). Data collection included demographics, medical history, medications, pathology, X-ray use, admissions, nutritional status and bowel function from time of catheter referral to 3 months post-PD. Retrospective patients received dietetic care as required, while prospective patients received pre-insertion dietetic assessment, fibre and fluid education, and constipation scoring; physiotherapy referral was completed when indicated. Analyses included descriptive statistics, regression, chi-squared and t-tests.
Results: FL occurred in 74% of retrospective and 76% of prospective patients. Rates did not differ by age, diabetes, fluid restriction, nutrition impact symptoms, nutritional status, binder use, BMI, or cognition ($p>0.05$). Constipation scoring, fibre education and reported fibre intake did not impact FL rates ($p>0.05$). Logistic regression explained 27.6% of FL variance ($R^2=0.276$). Male sex had higher odds of FL (AOR=3.79, 95% CI 1.22–11.76, p=0.021). Higher serum phosphate suggested increased FL risk (AOR=3.36 per 1 mmol/L, 95% CI 0.99–11.39, p=0.051; AOR 1.13 per 0.1 mmol/L). FL triggered abdominal X-ray in 71% and hospital admission in 20% of cases. Physiotherapy assessment occurred in 9% of participants and did not impact FL rates ($p>0.05$).
Conclusion: Acute FL is common and linked to complications. Early dietetic education and physiotherapy did not reduce FL rates. Further strategies are required to optimise bowel management and support PD effectiveness.

Dialysis (HD and PD) (P085-P107)

P095

A combined albumin-weight decline phenotype at 6 months predicts mortality in incident peritoneal dialysis patients

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Objective: Malnutrition in peritoneal dialysis (PD) population ranges between 34% and 52% globally and is associated with significant mortality. Clinically practical tools to identify patients entering high risk nutritional trajectories are limited. While albumin decline and weight loss alone are known risk factors, their combined trajectory specific impact has not been well characterised.
Method: We analysed an incident PD cohort (n = 50) with paired baseline and 6-month weight and albumin measurements. Two dynamic markers were identified: (1) albumin decline >5g/L and (2) weight loss >3kg from time of insertion of PD catheter to 6 months. A composite 2-factor risk phenotype was created for patents exhibiting both abnormalities.
Mortality outcomes were assessed using 2x2 tables, odds ratios and Fisher's exact testing. Continuous changes in weight and albumin were compared using a logistic model.
Results: The two-factor phenotype occurred in 3/50 (6%). Mortality was 2/3 (66.7%) with the phenotype vs 8/47 (17%) without (OR 7.75(Haldane-corrected), Fisher's p = 0.098). Sensitivity of the phenotype was 20% and specificity 97.5%. Logistic regression confirmed that percentage change in albumin was independently associated with mortality (p = 0.016) while percentage weight change was not. Patients with both risk factors had substantially worse outcomes indicating synergistic nutritional - inflammatory deterioration. The composite phenotype identified a clinically recognisable subset that would have been missed by evaluating weight or albumin trajectories individually.
Conclusion: A simple 6-month risk phenotype appears stronger than either variable alone and may serve as a simple, biologically coherent and actionable clinical screen for early identification of PD patients entering a high-risk malnutrition-inflammatory decline. This preliminary signal warrants validation in larger cohorts.

Dialysis (HD and PD) (P085-P107)

P096

I want to hold your hand - so give me a high protein blend!

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Objective: Chronic haemodialysis (HD) causes chronic nutrient deficiency, particularly of proteins and amino acids. Daily protein loss occurring during each dialysis session may contribute to hypoalbuminemia, a strong predictor of malnutrition and chronic malnourishment that leads to frailty (1). Grip strength is one element of frailty, as the loss of grip strength has been correlated with increased disability, morbidity, and mortality, as well as increasing chronological age (2-3). In this short study our aim is to correlate albumin level with grip strength of patients on chronic haemodialysis program.
Method: We included 70 patients on chronic haemodialysis. All of the patients are on haemodialysis thrice a week, and each receives a warm meal after dialysis. Grip strength was measured using the Squegg device. Two measurements were made using each hand and of the two, the higher one on the dominant hand was used for the comparison in the study. Student t test was used for normally distributed values, and differences within groups were measured using Spearman coefficient. Patients undertook the measurement before the dialysis treatment. Serum albumin was also measured.
Results: Our cohort included 70 haemodialysis patients, median age 71 (IQR 62-78) years, 17 females (24%). We divided patients into two age groups: younger group, aged ≤ 70 years, N=32, older group aged >70 years, N=38. Mean albumin levels were 38 (SD 3,31) in the younger group and 37 (SD 3,46) in the older group respectively (p=0.37) Median grip strength in the younger group was 26 (IQR 19-33) kg, and 19 (IQR 13-27) kg in the older group respectively (p=0.02). We found significant correlation (p=0,007) between serum albumin levels and grip strength in younger group and tendency towards significance in older group (p=0,06) which had lower median albumin levels.
Conclusion: Grip strength could be an available, easily measured and cheap way of indirectly assessing malnutrition. It correlates well with serum albumin levels in our cohort in younger patients. It is also important to note the patient's high interest in the results and further practice. Such tools could be implemented in everyday practice in dialysis centres.

Dialysis (HD and PD) (P085-P107)

P097

Protein rich meal is the source of albumin cheer

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Objective: Chronic kidney disease may lead to chronic nutrient deficiency, which is exacerbated by haemodialysis (HD). About 6-12 grams of amino acids loss and 7-8 grams of protein loss occurring during each dialysis session may contribute to hypoalbuminemia, a strong predictor of malnutrition and mortality. Optimal dietary protein intake (DPI), which is challenging in HD patients, may replenish albumins.
Method: We analysed data of haemodialysis patients using hospital electronic records. Patients receive a warm meal after every dialysis and in collaboration with a dedicated clinical nutritionist, we introduced an increased protein intake in these meals. Serum albumin levels are measured monthly. We used data two months prior and two months after the change in protein intake. Differences in albumin levels were compared using paired t test.
Results: The study included 70 haemodialysis patients, median age 71 (IQR 62-78) years, 17 females (24%). All of the patients are on haemodialysis thrice a week, and each received a warm meal after each dialysis session. Mean serum albumin level prior to intervention was 36.3 (SD 3,67) g/l. Two months after the change in DPI there was a significant change in albumin levels, mean 37 (SD 3,37) g/l, p= 0.03. We further analysed the differences between patients receiving enteral nutritional supplements and/or occasional albumin infusions, N=55, median age 71 (IQR 63-78) years, 14 females (25%) and those not receiving those, N=15, median age 70 (IQR 59-77) years, 3 females (20%). Patients not receiving any protein supplements had higher baseline albumin levels, mean 38,5 (SD 2,83) g/l, p=0.004 compared to the other group with median albumin levels of 35,3 (SD 3,28) g/l. After intervention, the non-supplement group had no significant changes in serum albumin levels (p=0.38) while those already on protein supplements benefited significantly with additional increase of DPI with albumin mean 36,5 (SD 3,5) g/l, p=0.01.
Conclusion: Increase in DPI, especially through post-dialysis warm meals may significantly increase serum albumin levels irrespective of any prior enteral or parenteral supplementation. Planning DPI with a dedicated nutritionist may help avert significant hypoalbuminemia.

Dialysis (HD and PD) (P085-P107)

P098

Amino acid and protein losses in adult patients receiving maintenance dialysis: a literature review

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Objective: Amino acid and protein losses occur during haemodialysis (HD) and peritoneal dialysis (PD) and have been documented for over 40 years. They have been identified as a potential contributing factor towards the development of protein-energy wasting. This literature review aimed to provide an updated summary regarding these losses in patients receiving in-centre HD, PD, home HD (HHD) and nocturnal HD (NHD).
Method: From 2000 to 2024, a literature review was undertaken, which focused on the following question: what are the protein, amino acid and peptide losses in adult patients receiving maintenance dialysis (HD, PD, HHD, NHD)? All records that measured amino acid, peptide and/or protein losses in the dialysate effluent in adults receiving any form of maintenance dialysis were included
Results: • Twenty-nine eligible records were identified (14HD/15 PD).
• Amino acid losses ranged from 9.3±2.9g to 12.0±2.0g per four-hour HD session but only reported in a single PD study (0.314g to 0.522g essential amino acids per day).
• Albumin losses ranged from 0.448g to 3.99g per HD/HDF session, and 4.23g to 6.12g per day with
PD. Albumin losses were significantly higher with post-dilution HDF compared to haemodialysis.
• Total protein losses were not reported in HD studies. Daily protein losses in patients receiving PD ranged from 4.37±1.71g to 10.0±0.6g.
• No studies reporting on amino acid/protein losses in HHD or NHD populations were identified.
Conclusion: There are wide differences in reported dialysis-related losses of amino acids and/or protein between treatment modalities. Differences in measured nitrogenous compounds, treatment regimes and analytic methods makes direct comparison between studies imprecise, however weekly protein and amino acid losses appear to greatest for PD recipients, followed by post-dilution HDF, pre-dilution HDF, and then HD. No data on the impact of higher frequency HD/HDF (from home ± nocturnal) HD regimes were available. Since PD occurs daily, patients receiving PD have greater weekly amino acid/protein losses than HD (Mafrici et al 2026)

Dialysis (HD and PD) (P085-P107)

P099

Rates of hypokalaemia and peritonitis in a single peritoneal dialysis centre population

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Objective: The International Society for Peritoneal Dialysis (PD) (ISPD) recommend modifiable peritonitis risk factors including hypokalaemia are managed[1]. In PD populations, peritonitis risk increases linearly with the duration and severity of hypokalaemia when compared to normokalaemic cohorts[2-3]. The ISPD, UK Kidney Association and Midlands Peritonitis Quality Improvement Project have target peritonitis rates of <0.4, <0.5 and <0.35 peritonitis episodes per patient year (PPY), respectively[1,4]. We aimed to identify if the centre rate of peritonitis aligned with these targets and the prevalence of hypokalaemia.
Method: Between 01/06/2022-01/08/2023 the centre PD population, centre peritonitis reports and average serum potassium over 3-months were used to identify peritonitis prevalence within the following cohorts: Total centre population, those with an average potassium 3.99-3.51mmol/L (Moderately Low Potassium (MLK)) and <3.50mmol/L (Low Potassium (LK)).
Results: The centre PD population was 105, 19 (11.1%) had MLK and 4 (4.1%) had LK. There were 61 peritonitis episodes, with peritonitis rates of 0.55, 0.63 and 0.75 PPY for the total centre, MLK and LK cohorts respectively. There were 68 peritonitis cases if recurrent, relapsing, repeat and refractory peritonitis episodes are included with rates of 0.71, 0.94 and 1.25 PPY for the total centre, MLK and LK cohorts, respectively.
Conclusion: Peritonitis rates were above recommended targets, and the prevalence of primary and non-primary peritonitis episodes increased in a linear manner the lower the average serum potassium. A novel finding of this audit was that those with hypokalaemia were more susceptible to repeat, relapsing, refractory and recurrent peritonitis episodes and similarly to primary peritonitis this susceptibility increased in a linear manner the lower the average serum potassium. The small sample sizes limits the transferability of these findings.
The audit findings align with existing evidence that hypokalaemia is associated with higher risk of peritonitis[1-3]. A larger multi-centre audit could identify an association between average serum potassium and primary and non-primary peritonitis episodes and address the limitation of a small sample size.

Dialysis (HD and PD) (P085-P107)

P100

You shall not pass! Does the staff really hold the staff?

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Objective: Frailty is defined as a clinical state of vulnerability to endogenous and exogenous stressors that produces exacerbated outcomes when compared to non-frail counterparts. Grip strength is one element of frailty, as the loss of grip strength has been correlated with increased disability, morbidity, and mortality, as well as increasing chronological age. In this short study our aim is to compare the grip strengths of chronic haemodialysis patients and our dialysis centre staff.
Method: Grip strength was measured using the Squegg device. Two measurements were made using each hand and of the two, the higher one was used for the comparison in the study. Patients' grip strength was measured before the haemodialysis treatment. The data were analysed using descriptive statistics.
Results: The data were collected from 87 patients (68 males, 78,1%) on chronic haemodialysis and from 20 staff members (3 males, 15%). The median age of patients was 70.5 years and of the staff 41.5 years, while the respective BMIs were 25.6 kg/m² and 26.1 kg/m². Seventy-five (83.9%) of the patients and 19 (95%) of the staff were right-handed, 11 (12.4%) of the patients and one person (5%) of the staff were left-handed, while only one (1.1%) patient was ambidextrous. The maximum grip strength for patients and staff was the same at 46 kg, while the minimum was 3 kg and 9 kg, respectively. The average strength of the dominant hand was 23 kg for patients and 34 kg for staff, and 21 kg and 31.1 kg for the non-dominant hand, respectively. For patients with an arteriovenous fistula (AVF) (49 patients in total), there was a slight difference in grip strength between the hand with and without the AVF with 22 kg and 24 kg, respectively.
Conclusion: As is seen from the results, dialysis patients on average a have weaker grip strength than the staff, probably due to age difference and the comorbidities that burden this population. Grip strength is an important index of frailty and we believe that it can be utilised as a measurement of a patient's well-being as well as a predictive tool to recognize the early stages of sarcopenia. This short study has lifted the morale of both the patients and the staff. Patients were extremely interested in the results and showed wanted to continue grip strength practice.

Dialysis (HD and PD) (P085-P107)

P101

It ain´t necessarily so: increase in serum albumins does (not) affect intravascular volume

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Objective: Assessing intravascular volume in chronic haemodialysis (HD) patients can be achieved by measuring both inferior vena cava (IVC) diameter and Venous Excess Ultrasound (VExUS). It is an ultrasound method that assesses systemic venous congestion by evaluating the IVC and doppler waveforms of the hepatic, portal and renal veins and is graded 0-3. HD patients are prone to hypoalbuminemia due to chronic nutrient deficiency, which can affect oncotic pressure of plasma volume overload in extracellular spaces. In this short study we aimed to correlate IVC diameter and VExUS with albumin levels in patients on chronic HD.
Method: We included 70 patients on chronic haemodialysis. We measured IVC diameter and VExUS and serum albumins before the dialysis treatment. Measurements were taken in two time points, 4 months apart during which time we introduced a high protein post-dialytic meal in order to improve patients' albumin levels. Values were compared using paired T test and for normally distributed values and Wilcoxon signed-rank test for non-normally distributed values. Ordinal variables were compared using Spearman correlation coefficient.
Results: We included 70 haemodialysis patients, median age 71 (IQR 62-78) years, 17 females (24%). At time point 1 mean serum albumin was 36 (SD 3,46) g/l, IVC diameter mean 1.8 (SD 0,45) cm and median VExUS grade 0 (IQR grades 0-1). At time point 2 mean serum albumin was 37 (SD 3,37) g/l, mean IVC diameter 1.7 (SD 0,52) cm and median VExUS grade 0 (IQR grades 0-1). There were significant changes in albumin levels between two points (p=0.01), no changes in IVC diameter (p=0.15) though there was significant improvement in VExUS grades (p=0.0005). There was no significant correlation between changes in serum albumin levels and IVC diameter and VExUS. (p=0.45).
Conclusion: Though there were significant changes in albumin levels due to nutritional intervention, this did not correlate with the changes in IVC diameter and VExUS. It might be that increase in albumin levels increased oncotic pressure and allowed more adequate fluid removal during haemodialysis thus reducing potential correlation of serum albumins and IVC diameter/VExUS. Our results still point to beneficial effects of increased protein intake which should be encouraged in HD patients.

Dialysis (HD and PD) (P085-P107)

P102

Very Low Energy Ketogenic Therapy (VLEKT) in dialysis patients: a feasibility, safety, and efficacy study for kidney transplant eligibility

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Objective: Obesity represents a major barrier to kidney transplant eligibility in patients with end-stage renal disease, as elevated BMI is associated with increased cardiovascular risk and surgical complications. Weight loss in dialysis patients is particularly challenging because conventional caloric restriction may worsen protein–energy wasting and sarcopenia. Very Low Energy Ketogenic Therapy (VLEKT) induces nutritional ketosis and may promote fat loss while preserving lean mass through appetite suppression, metabolic flexibility and anti-inflammatory signaling.
Method: We conducted a prospective observational study including six obese dialysis patients (4 on hemodialysis, 2 on peritoneal dialysis) with BMI ≥28 kg/m² and eligibility for kidney transplantation. Patients followed a three-phase ketogenic protocol specifically adapted for kidney replacement therapy. The regimen included high biological value proteins (1.2–1.5 g/kg ideal body weight), controlled fluid intake, and strict electrolyte monitoring. In peritoneal dialysis patients, dialysate prescriptions were modified to minimize glucose absorption. Body composition was assessed weekly using bioelectrical impedance analysis, focusing on fat mass and skeletal muscle indices.
Results: After a mean treatment duration of 89 days, patients achieved a mean BMI reduction of 14.2% and a 28.3% decrease in fat mass, while skeletal muscle indices remained stable, suggesting preservation of lean mass. Electrolyte levels remained stable or improved throughout the intervention. Most patients reduced or discontinued phosphate binder therapy. No severe adverse events were observed. All participants achieved the BMI threshold required for transplant listing, and one patient underwent successful kidney transplantation during the observation period.
Conclusion: VLEKT appears to be a feasible and safe strategy to induce rapid weight loss in obese dialysis patients while preserving muscle mass. When carefully adapted to the metabolic and dialysis-related constraints of kidney replacement therapy, this approach may facilitate access to kidney transplantation and serve as a structured metabolic optimization pathway for candidates previously excluded from transplant waiting lists because of obesity.

Dialysis (HD and PD) (P085-P107)

P103

Association between bioimpedance(BIA) defined overhydration and ultrasound-assessed congestion in hemodialysis patients

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Objective: To evaluate the association between BIA-defined overhydration and ultrasound-assessed congestion in maintenance hemodialysis(MHD) patients, and to explore its relationship with nutritional and functional parameters.
Method: This cross-sectional study included 30 MHD patients. Demographic, hemodynamic, biochemical, nutritional, and functional variables were collected. Measurements were obtained before hemodialysis, after an interdialytic interval associated with high weight gain.Overhydration (OH) was assessed by BIA using the BCM device (Fresenius Medical Care) and defined as OH >2.5 L according to the manufacturer's threshold. Congestion was evaluated by lung ultrasound and by the portal pulsatility index (PPI) obtained from Doppler assessment of the hepatic portal vein. Muscle strength was assessed using handgrip strength. Nutritional status was evaluated using the Subjective Global Assessment and Protein-Energy Wasting (PEW) criteria. Continuous variables were expressed as median and interquartile range (P25–P75). Non-parametric tests were used for comparisons. Associations between categorical variables were evaluated using Fisher's exact test with the Phi coefficient as effect size.
Results: Median age was 65.5 years (56.0–70.2), 43.3% were male, and median BMI was 26.8 kg/m² (23.1–28.6). Median intradialytic ultrafiltration was 2450 mL (1875–3000). Median serum albumin was 4.12 g/dL (3.68–4.32), and median handgrip strength was 12.4 kg (9.2–23.5). PEW was present in 10% of patients. BIA-defined OH occurred in 80% of patients and was significantly associated with ultrasound-detected vascular congestion ($p=0.005$; $\varphi=0.535$). Vascular congestion was present in 66.7% of overhydrated patients and in none of the normohydrated patients. PPI was higher in overhydrated patients (37 [23–48] vs. 22 [18–26], $p<0.05$). No significant association was observed between PEW and vascular congestion.
Conclusion: BIA-defined OH is associated with ultrasound-assessed pulmonary vascular congestion and increased portal pulsatility in MHD patients. BIA may help identify clinically relevant venous congestion. Larger studies are needed to determine whether OH and congestion are significantly associated with PEW in MHD patients.

Dialysis (HD and PD) (P085-P107)

P104

Target Range of Low-Density Lipoprotein Cholesterol in Peritoneal Dialysis Patients

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Objective: Although lipid levels in patients undergoing peritoneal dialysis (PD) have been studied, the appropriate LDL-c level for long-term management remains undefined. We hypothesized that applying time in target range (TTR) to longitudinal LDL-c measurements would identify an optimal LDL-c range to improve clinical outcome in PD patients.
Method: This single-center cohort study included 2,635 incident PD patients. In the absence of PD-specific LDL-c targets, exploratory target ranges were defined based on quartile distribution of baseline LDL-c levels. TTR, defined as the proportion of follow-up time during which LDL-c remained within a target range, was calculated using the Rosendaal method. Associations between TTR within different LDL-c target ranges and mortality were evaluated.
Results: Over a median follow-up of 46.5 months, 636 deaths occurred, including 336 cardiovascular deaths. Higher TTR was associated with increased mortality at the lowest (≤ 2.12 mmol/L) and highest (> 3.34 mmol/L) LDL-c ranges, but reduced mortality within intermediate ranges (2.12–2.69 and 2.69–3.34 mmol/L). After combining the intermediate ranges (2.12–3.34 mmol/L), each 10% increase in TTR was associated with a 7% lower risk of cardiovascular mortality (HR 0.93, 95% CI 0.90–0.97; p = 0.001) and a 5% lower risk of all-cause mortality (HR 0.95, 95% CI 0.93–0.98; p = 0.001), with consistent findings in restricted spline analyses.
Conclusion: In PD patients, maintaining LDL-c within the moderate range of 2.12-3.34 mmol/L, rather than within the lowest (≤ 2.12mmol/L) or highest (> 3.34mmol/L) range, was associated with better clinical outcomes.

Dialysis (HD and PD) (P085-P107)

P105

Can short daily home hemodialysis preserve muscle mass despite low-flow lactate-buffered dialysate?

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Objective: Mscle mass is a key predictor of outcomes in hemodialysis patients and has emerged as a potentially modifiable factor influencing both prognosis and quality of life. Short daily Home Hemodialysis (HDD) and other intensified modalities have shown benefits in nutritional parameters compared to conventional thrice-weekly HD. The development of portable systems such as the NxStage device has facilitated the use of HDD with low dialysate flow. However, its lower dialysis dose per session and the use of lactate-buffered dialysate may raise concerns regarding nutritional status.This study aimed to evaluate the impact of HDD with low-flow lactate dialysate on body composition in patients with stage 5 chronic kidney disease
Method: We conducted a prospective cohort study of adult patients initiating short daily home HD with a low-flow NxStage system (2014–2020). Outcomes were compared with propensity score–matched in-center HF-HD and OL-HDF cohorts. Body composition was assessed by bioimpedance at baseline, 3, 6, and 12 months. The primary outcome was change in lean tissue mass; secondary outcomes included other bioimpedance and laboratory parameters. Longitudinal changes were analyzed using mixed-effects models.
Results: A total of 25 HHD patients were propensity score–matched to 100 in-center HD patients (HF-HD n=50; OL-HDF n=50), with well-balanced baseline characteristics.Compared with HF-HD, HHD was associated with a significant increase in lean tissue mass at 12 months (+4.51 kg; p=0.018) . Serum albumin significantly increased in the HHD group over time (+0.33 g/dL at 12 months; p<0.0001), along with a reduction in hs-CRP and β2-microglobulin levels compared with HF-HD.
Conclusion: HHD with low flow lactate buffered dialysate is associated with preservation of muscle mass in HD patients. Despite dialysate composition the treatment frequency may confer significant clinical benefits, supporting its use as a strategy to improve outcomes in chronic hemodialysis patients.

Dialysis (HD and PD) (P085-P107)

P106

Longitudinal changes in nutritional and inflammatory markers in incident hemodialysis patients

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Objective: Patients with chronic kidney disease (CKD) frequently present alterations in nutritional status, body composition, and systemic inflammation, which are associated with adverse clinical outcomes. The initiation of hemodialysis (HD) represents a critical transition; however, the early changes in these parameters among incident patients remain incompletely understood. The aim of this study was to evaluate longitudinal changes in anthropometric parameters, dietary intake, biochemical parameters, and inflammatory markers in incident HD patients over six months.
Method: This longitudinal study included 18 incident HD patients (54.7 ± 14.1 years; 59.2% men). Assessments were performed at the initiation of hemodialysis and after six months of follow-up. Anthropometric measurements included body weight, body mass index (BMI), arm and waist circumferences, skinfold thickness, and body fat percentage. Dietary intake was evaluated using a three-day 24-hour dietary recall, and physical activity levels were assessed through the International Physical Activity Questionnaire (IPAQ). Biochemical parameters, including C-reactive protein (CRP), were analyzed using Bioclin kits.
Results: After six months, a significant increase in body weight (p=0.007) and fat-free mass (p=0.04) was observed, while BMI, circumferences, skinfolds, and body fat percentage remained unchanged. No significant changes were found in energy, macronutrient, or fiber intake, nor in physical activity levels. Albumin levels increased (p = 0.05), whereas CRP levels decreased (p = 0.05). No significant differences were observed in routine biochemical parameters.
Conclusion: Incident hemodialysis patients showed improvements in markers of nutritional and inflammatory status. These findings suggest that initiating hemodialysis may contribute to early metabolic improvements.

Dialysis (HD and PD) (P085-P107)

P107

Exploring the Relationship Between Lifestyle Factors and Continuous Glucose Monitoring Metrics in Peritoneal Dialysis patients

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Objective: Patients undergoing peritoneal dialysis (PD) are exposed to glucose-based dialysates, which may affect glycemic control. The role of lifestyle factors in glucose variability in this population remains insufficiently explored.
Method: In this cross-sectional study, 31 participants (21 male PD patients and 10 healthy male controls) were monitored over 10 days. Lifestyle parameters (step count, heart rate, and sleep duration) were collected using Garmin Vivoactive 4 smartwatches. Interstitial glucose was assessed using the Dexcom G7 continuous glucose monitoring system, with time-in-range (TIR 3.9–10.0 mmol/L) as the primary metric. Body composition was evaluated using bioelectrical impedance analysis (BIA).
Results: PD patients were less physically active (6023.62 ± 3243.87 vs. 8785.40 ± 2289.92 steps; $p < 0.05$) and had lower heart rates during activity (110.71 ± 12.35 vs. 129.50 ± 9.95 bpm; $p = 0.02$). TIR was slightly lower in PD patients (95.81 ± 5.44% vs. 96.60 ± 2.32%; $p = 0.78$). PD patients also exhibited lower phase angle (5.59 ± 1.07 vs. 6.73 ± 0.59°; $p = 0.013$) and poorer sit-to-stand performance ($p < 0.001$). Differences in sleep duration and FFMI were not statistically significant.
Conclusion: PD patients demonstrate reduced physical activity and functional capacity compared to healthy controls. While overall glycemic control was similar, lifestyle factors—particularly sleep and physical activity—appear to influence glucose variability. These findings highlight the potential importance of lifestyle interventions in optimizing metabolic outcomes in PD patients.

Digital: wearables, apps and telemedicine (P108-P116)

P108

Evaluating Behavior Change Techniques Used in Digital Nutrition Interventions for Chronic Kidney Disease

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Objective: Despite the growing adoption of digital nutrition interventions, there is limited evidence to show that they can create meaningful behavior change. This study aimed to evaluate the behavior change (BC) techniques employed by digital nutrition interventions for adults with CKD.
Method: A systematic search was conducted across MEDLINE, CINAHL, EMBASE, and CENTRAL from inception to Jan 2026. Eligible studies included controlled trials for digital nutrition interventions for adults with CKD. Screening was conducted independently by two authors. BC techniques were coded using the 93-coded Behavior Change Taxonomy.
Results: Thirteen studies (n=7 hemodialysis, n=1 peritoneal dialysis, n=5 CKD) were included and reported over 20 different BC techniques utilized across the interventions. Most common BC techniques included *Instruction on how to perform behavior* (n=13, 100%), *Information about Health Consequences* (n=9, 69%), *Self-Monitoring of Behavior* (n=11, 85%) and *Goal Setting* (n=4, 30%), with the most common BC groupings including *Feedback and Monitoring* (n=9, 69%) and *Goals and Planning* (n=5, 38%).
Across five studies (i.e. 38% of the included studies; n=4 hemodialysis, n=1 CKD) which reported significant improvement in nutrition outcomes, interventions combined BCTs *Self-Monitoring of Behavior, Information about Health Consequences, Goal Setting, Prompts/Cues, Social Support, and Behavioral Practice/Rehearsal* (n=3 (60%). The next most frequent were action planning, problem solving, *Instruction on How to Perform Behavior, Demonstration of Behavior, Feedback on Behavior, and Feedback on Behavior, and Feedback on Outcomes of Behavior* (n=2, 40%). These interventions were delivered via apps, text-messaging and telehealth, durations were ≤3 months (80%).
Conclusion: These findings show that over 25% of the existing 93 BC techniques were employed by digital nutrition interventions for people living with CKD. Effective BC techniques used in CKD digital nutrition interventions focus on goal setting, feedback and monitoring and information on natural consequences. The findings can be used to support clinicians to better design and deliver effective behavior change interventions using digital nutrition programs for adults living with CKD.

Digital: wearables, apps and telemedicine (P108-P116)

P109

A randomised controlled trial comparing the effect of a digital health intervention to standard care on serum phosphate control in patients on dialysis. (The TELEKINESIS Study)

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Objective: Hyperphosphataemia is a common metabolic complication of chronic kidney disease (CKD) and is associated with poor health outcomes. Dietary management is a critical strategy in its treatment; however, it is complicated by the complexity of the diet and limited access to dietitians. The aim of this study was to determine if the use of a digital health intervention was an effective and acceptable method to deliver dietary advice as an adjunct to standard care.
Method: This six-month multi-centre randomised controlled trial recruited patients receiving dialysis across 23 sites in Australia. Both groups received standard care for six months and the intervention group received the TELEKINESIS App for the first three months. The primary outcome was the change in serum phosphate levels.
Results: One hundred and ninety people were recruited, 99 randomised to receive the intervention. At three months, both intervention and control group showed significant reductions in serum phosphate levels. In the intervention group phosphate decreased from 2.24 to 2.09 mmol/L, (p=0.009), versus the control group which decreased from 2.22 to 2.08 mmol/L (p=0.012). This persisted in the intervention group until month six reaching 2.03 mmol/L (p=<0.001) but not the control group (2.11 mmol/L, p=0.072). In the intervention group, females experienced the largest mean serum phosphate reduction of -0.30 mmol/L (-0.45, 0.16, p=<0.005) at month three and -0.44 mmol/L (-0.59, -0.29, p=<0.001) at month six. They also showed the highest app engagement (57%) which increased to 66% in females over 65 years.
Conclusion: This digital health intervention delivered as an adjunct to standard care shows promise in assisting individuals with CKD undertaking dialysis to enhance their health behaviour. It demonstrated improvements in serum phosphate levels at month three, with sustained reductions until month six. The support offered via the TELEKINESIS App may be particularly helpful for females. This extensive study, the largest in its field, also ensured a broad examination of the intervention's effectiveness across varied demographic groups. Funding has been secured to further refine the app prototype by expanding content, enhancing functionality and integrating a responsible, trusted AI application.

Digital: wearables, apps and telemedicine (P108-P116)

P110

Development of Educational Material to Improve Adherence to a Healthy Diet in Patients with Non-Dialysis Chronic Kidney Disease (CKD)

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Objective: Innovative educational materials with a patient centered approach could improve adherence to a healthy diet in CKD. Aim: To develop educational material to improve adherence to a healthy diet in CKD patients stages 3–4.
Method: Educational material was developed and reviewed by experienced renal dietitians, based on perceived barriers and facilitators (ByF) from CKD patients (from a qualitative study). Each component of the main ByF was used to define topics, structure sessions, and select educational strategies using the COM-B model (Capability, Opportunity, and Motivation). The scripts were created, the videos were professionally recorded and edited, and digital patient education handouts were developed. A survey was administered to 10 patients to evaluate the material language, length and clarity (score: 0-5).
Results: A virtual educational material was developed to increase access for patients with limited mobility, living in rural areas, and to enhance practical skills and stimulate interaction through structured exposition. It consists of 4 sessions, including 10 short videos to enhance attention and comprehension of the topics, and 6 digital handouts to reinforce the content.
Main ByF and educational strategies used were:

- **Food preferences, taste, and traditions:** Culturally acceptable healthy recipes were designed (Mexican dishes)
- **Lack of knowledge/guidance:** Meaning and benefits of a healthy diet were explained (expository strategy); a demonstration strategy was used to show how to choose healthy foods and address common myths about foods
- **Lack of time:** Simple and practical fruit/vegetable preparations suitable for different occasions were presented (exemplification)
- **Economic constraints:** Low-cost recipes examples using locally available ingredients were incorporated
- **Emotions:** Family members/caregivers involvement during the educational sessions was encouraged to support motivation

Material evaluation by patients was excellent (mean score 4.2/5.0).
Conclusion: This educational material proposes a structured intervention to improve adherence to a healthy diet, that may contribute to strengthening nutritional practice in CKD by promoting a patient centered approach.

Digital: wearables, apps and telemedicine (P108-P116)

P111

Validity of a Self-Dietary Assessment Nutrition Application (Nutrirodcal) for Estimating Protein Intake in Patients with Chronic Kidney Disease

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Objective: To evaluate the validity of a self-dietary assessment nutrition application (www.nutrirodcal.com) in estimating dietary protein intake compared with protein intake derived from 24-hour urinary urea nitrogen in patients with predialysis CKD.
Method: This prospective validation study enrolled adult patients with CKD stages 3–5 who had not received kidney replacement therapy. Participants recorded their daily dietary intake using the Nutrirodcal application. Dietary protein intake (DPI) estimated by the application was compared with normalized protein equivalent of total nitrogen appearance (nPNA), calculated from 24-hour urinary urea nitrogen collections, at weeks 4, 8, and 12. Agreement and correlation between methods were evaluated using intraclass correlation coefficients (ICC) and Pearson's correlation coefficients.
Results: A total of 21 patients (mean age 60 ± 9.9 years; 57% male) were included. Mean nPNA and application-derived DPI were comparable across all time points. The ICC between nPNA and DPI demonstrated moderate agreement at week 4 (ICC = 0.469, p = 0.014), week 8 (ICC = 0.510, p = 0.008), and week 12 (ICC = 0.413, p = 0.028). Pearson's correlation coefficients showed significant correlations at week 4 (r = 0.485, p = 0.026) and week 8 (r = 0.510, p = 0.018), with a borderline correlation at week 12 (r = 0.414, p = 0.062). Subgroup analyses suggested stronger correlations in patients with CKD stages 3–4 and in those with body mass index ≥ 23 kg/m².
Conclusion: The Nutrirodcal self-dietary assessment application demonstrated acceptable validity for estimating dietary protein intake in patients with pre-dialysis CKD when compared with 24-hour urinary urea nitrogen–derived nPNA. This digital tool may serve as a practical adjunct for nutritional monitoring and counseling in routine CKD care.

Digital: wearables, apps and telemedicine (P108-P116)

P112

From patient needs to digital dietary care: development and pilot feasibility of a mobile nutrition monitoring system in advanced CKD

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Objective: Dietary management is a cornerstone of chronic kidney disease (CKD) care but is difficult to sustain in real-world settings. To address patient-reported implementation barriers, we developed a mobile health–based nutrition follow-up application informed by qualitative needs assessment.
Method: Semi-structured interviews with CKD patients were conducted to identify barriers to dietary implementation. Based on these findings, a mobile application integrating dietary self-monitoring, nutrient feedback, and clinician-supported follow-up was developed. In a prospective pilot study, patients with advanced CKD used the application and were followed longitudinally to evaluate digital engagement, self-efficacy, dietary adherence behavior, and post-intervention dietary satisfaction.
Results: Qualitative interviews with 10 patients identified limited nutrition knowledge, uncertainty in food choices, lifestyle constraints, and psychological burden as key barriers, while structured guidance and individualized feedback as facilitators. Fifty patients with CKD stages 4–5 were enrolled to use the mobile intervention for 4 weeks, and 20,335 dietary records were collected. User engagement increased rapidly after enrollment, followed by progressive engagement decay. A small subgroup demonstrated sustained long-term self-monitoring.
Self-efficacy related to non-pharmacological disease management improved significantly after the intervention (Wilcox rank test, $p < 0.0001$). High adherence to recommended dietary behaviors was reported, particularly for reducing meat and offal intake (94% and 90%),whereas increasing fruit intake showed comparatively lower adherence (74%). Post-intervention satisfaction analysis demonstrated high perceived benefit (mean domain score 4.67/5), with moderate practical feasibility (3.50/5) and economic acceptability (3.72/5).
Conclusion: A patient-centered mobile nutrition application developed from qualitative needs assessment was feasible for supporting dietary self-management in advanced CKD. It was associated with improved self-efficacy, favorable dietary adherence, and positive patient experience.

Digital: wearables, apps and telemedicine (P108-P116)

P113

Dietary Balance Assessment in Stage 4-5 Chronic Kidney Disease Patients Using URIKI, a Connected Urine Strip and In-Vitro Diagnostic Medical Device

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Objective: Nutritional management is central to nephroprotection in chronic kidney disease (CKD). However, dietary assessment commonly relies on 24-hour urine collection, which is cumbersome, frequently incomplete, and poorly adhered to by patients. Consequently, nutritional evaluation and individualized counseling are often delayed. URIKI is a connected urine strip designed for home use that measures ten urinary biomarkers within four minutes and automatically transmits results to both patients and healthcare professionals through a digital platform. This study evaluates the organizational, clinical, and patient-related impact of implementing URIKI for nutritional assessment in stage 4–5 CKD.
Method: A quasi-experimental interrupted time-series study will assess the impact of URIKI implementation in the Nephrology Department of AP-HP Sorbonne Université. Two open cohorts of CKD stage 4–5 patients (n=200; 100 before and 100 after implementation) will be analyzed over 12 months of recruitment. Eligible participants are adults with eGFR <30 mL/min/1.73 m² undergoing nutritional evaluation through standard care or with URIKI. Data will be collected through interoperable interfaces linking the hospital information system (Orbis), the URIKI platform, and the Skezia data-collection system. The primary endpoint is the proportion of patients achieving a complete nutritional assessment. Secondary outcomes include number of complete CKD care bundles, changes in eGFR slope and proteinuria, patient satisfaction and therapeutic education scores, dietitians' quality of work life, and carbon footprint of the care pathway.
Results: Preliminary data from an ongoing proof-of-concept study (n≈50) show high usability, reliable biomarker transmission, and reduced dietitian workload. The study is expected to demonstrate improved completion of nutritional assessments and a ≥15% reallocation of dietitians' time to new patients, while enhancing patient engagement through real-time feedback on dietary behaviors.
Conclusion: URIKI represents a digital, patient-centered alternative to traditional 24-hour urine collection, enabling earlier identification of dietary imbalances, improved self-management, and more efficient use of clinical resources in advanced CKD care.

Digital: wearables, apps and telemedicine (P108-P116)

P114

Validation of an App for Estimating Protein Intake and Characterization of Salt Intake in Advanced Non-Dialysis CKD

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Objective: Optimal management of non-dialysis CKD requires monitoring of protein and salt intake. KDOQI 2020 recommends sodium restriction to 2.3 g/day (≈5.75 g/day of salt) and protein intake of 0.6–0.8g/kg/day. Although dietary assessment is the reference method for estimating protein intake (PI), access to dietitian support is often limited in routine practice. Moreover, dietary surveys underestimate salt intake compared with 24-hour urinary sodium. To facilitate rapid assessment, a mobile application was developed to estimate PI using the Maroni formula and salt intake through stoichiometric conversion of sodium from body weight and 24-hour urine urea and sodium. This study aimed to validate the app for PI estimation and to characterize salt intake and its underestimation.
Method: Cross-sectional study including 34 measurements from 15 patients with CKD stages 4–5. PI estimated by the app (PI-app) was compared with 24-hour dietary recall (PI-diet). Salt intake was assessed using 24-hour urinary sodium as the gold standard, applying stoichiometric conversion and assuming 93% urinary recovery. This was compared with dietary estimates. Paired t-test and Pearson correlation were used. Agreement was assessed using intraclass correlation coefficient (ICC) and Bland–Altman analysis. Adherence to salt recommendations was evaluated using urinary data.
Results: *Protein intake:* Mean PI was similar (0.72±0.16 vs 0.70±0.17 g/kg/day; p=0.3), with strong correlation (R^2=0.68; p<0.001) and excellent agreement (ICC=0.90; 95%CI: 0.80–0.95).
Salt intake: Mean salt intake was higher using urinary assessment than dietary estimation (9.17±3.95 vs 3.43±1.44 g/day;p<0.001), indicating 63% underestimation. Overall, 91% exceeded the KDOQI target of 5.75 g/day. Salt intake fell within the highest risk quartile associated with increased mortality and CKD progression.
Conclusion: This study validates a Maroni-based app enabling rapid, accurate PI estimation in CKD, supporting clinical decision-making, particularly where dietitian support is limited. It also provides objective salt intake assessment, showing most patients exceed recommendations and dietary methods underestimate intake. Urinary biomarkers are a reliable tool for nutritional monitoring.

Digital: wearables, apps and telemedicine (P108-P116)

P115

Continuous Glucose Monitoring and Cognitive Function in a National Cohort of Veteran Dialysis Patients with Diabetes

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Objective: ESKD patients with diabetes mellitus (DM) frequently experience dysglycemia, which is a risk factor for adverse clinical outcomes. Dysglycemia (particularly hypoglycemia) has been linked to cognitive impairment, which is highly prevalent in this population. In the non-ESKD population, clinical trials have shown that continuous glucose monitoring (CGM), a wearable diabetes technology that provides automated, comprehensive, and less invasive glucose measurements than conventional metrics (HbA1c, self-monitored blood glucose) confers improved glycemic control and less hypoglycemia. We thus sought to evaluate whether CGM use is associated with lower risk of cognitive dysfunction in a national dialysis cohort with DM.
Method: Using linked national VA, USRDS, and Medicare data, we examined the association between incident CGM use vs. non-CGM use and cognitive function among US Veteran dialysis patients with DM. We compared the risk of 1) incident dementia (primary endpoint) and 2) either dementia or mild cognitive impairment (combined dementia/MCI) (secondary endpoint) among patients with CGM use vs. non-CGM use over the period of 1/2012-12/2023 who were followed through 2/2025. Patients were matched by propensity score (PS) in a 1:1 ratio to address confounding by indication. We examined the association of incident CGM use vs. non-CGM use with cognitive dysfunction using unadjusted and doubly-adjusted Cox models.
Results: There were 1136 matched pairs of patients with incident CGM use and with non-CGM use (total N = 2272) after PS matching. Median follow-up was 1.7 (IQR: 0.8-2.9) years. Compared with non-CGM use, CGM use was associated with lower risk of incident dementia and lower risk of combined dementia/MCI in unadjusted PS-matched analyses: HR (95% CI) 0.64 (0.43, 0.95) and 0.62 (0.43, 0.89), respectively. These findings were robust in doubly-adjusted Cox models (ref: non-CGM use): HR (95% CI) 0.59 (0.39, 0.89) and 0.56 (0.38, 0.82), respectively.
Conclusion: In dialysis patients with DM, CGM use was associated with better cognitive function vs. non-CGM use. Further studies are needed to determine underlying mechanisms, as well as the impact of CGM on other hard endpoints and patient-centered outcomes in ESKD.

Digital: wearables, apps and telemedicine (P108-P116)

P116

Patient Readiness and Adherence to Real-Time Continuous Glucose Monitoring: Secondary Analyses from the Pilot NIH CONDOR Trial

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Objective: In the general population, real-time continuous glucose monitoring (rtCGM) has demonstrated benefits in improving glycemic control and reducing hypoglycemia. However, variability in patient readiness and adherence may influence the effectiveness of rtCGM interventions. The ongoing NIH-funded CONDOR pilot trial is evaluating the feasibility and efficacy of rtCGM use vs. usual care in dialysis patients with diabetes. This secondary analysis aimed to assess adherence to rtCGM during the pre-trial and intervention periods.
Method: This study is a secondary analysis from the multi-center NIH CONDOR pilot trial, a randomized, parallel-arm clinical trial in which dialysis patients with diabetes undergo baseline blinded CGM assessment over a 10-day period, followed by randomization to rtCGM use vs. usual care over a 12-week intervention period. Participants in the rtCGM arm undergo non-blinded CGM throughout the intervention and post-trial periods, whereas those in the usual care arm undergo blinded CGM at weeks 6 and 12 of the intervention period and during the post-trial period. In this substudy of 34 participants from the NIH CONDOR trial, we separately examined 1) blinded CGM adherence during the baseline period across all participants, 2) non-blinded CGM adherence during the intervention period among participants in the rtCGM arm, and 3) blinded CGM adherence during the intervention period among participants in the usual care arm. Adherence to rtCGM was measured by the percentage (%) of time the sensor was worn/active.
Results: Among 34 NIH CONDOR participants, the mean adherence to CGM during the baseline period was 91%, with 100% of participants meeting predefined adherence thresholds (>70% time worn/active). Among participants in the rtCGM arm, mean adherence to CGM was 92% during the intervention and post-trial periods. Among participants in the usual care arm, mean adherence to CGM was 91% during the intervention and post-trial periods.
Conclusion: In this secondary analysis of the CONDOR pilot trial, consistently high adherence was observed across all study phases, suggesting that CGM use is both feasible and sustainable in dialysis patients with diabetes. Further research is needed to determine whether similar adherence can be achieved among dialysis patients in the real-world setting

Dyslipidemia, inflammation and oxidative stress (P117-P120)

P117

Anti-inflammatory Effects of Brazilian Native Fruit Jaboticaba (Plinia cauliflora) Peel in Patients with CKD Undergoing Hemodialysis

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Objective: Jaboticaba (*Plinia cauliflora*), a Brazilian native fruit, is rich in bioactive compounds, particularly anthocyanins and other polyphenols concentrated in its peel, with well-documented anti-inflammatory properties. Patients with CKD undergoing hemodialysis (HD) present persistent low-grade inflammation, which may be further aggravated by the dialysis procedure. As inflammation plays a central role in the development of cardiovascular complications, an important cause of death in this population, nutritional strategies targeting inflammatory pathways have gained increasing attention. This study evaluated the effects of Jaboticaba peel supplementation on inflammatory markers in patients with CKD undergoing HD.
Method: This randomized controlled clinical trial included 27 patients (59.2% male; age 55.0 [19.5] years; BMI 24.3 [3.8] kg/m²) on regular HD. Participants were randomized to receive a Jaboticaba peel formulation (3.3 g/day, equivalent to approximately 667 mg of phenolic compounds) for 3 weeks or to continue routine treatment (control group). Plasma levels of interleukin (IL)-1β and IL-17E were measured by ELISA. Statistical analyses were adjusted for age, sex, BMI, and duration of hemodialysis.
Results: IL-1β levels increased significantly in the control group (1.08 to 1.22; +13.0 %; p=0.02), whereas no significant change was observed in the jaboticaba group (1.09 to 1.13; +3.0 %; p=0.84). Similarly, IL-17E levels increased in the control group (0.88 to 1.0; +13.3 %; p=0.006), while a non-significant increase was observed in the jaboticaba group (0.9 to 0.96; +7.2 %; p=0.23), suggesting a potential anti-inflammatory effect of the supplementation.
Conclusion: These findings suggest that Jaboticaba peel supplementation may represent a promising adjuvant nutritional strategy to attenuate chronic inflammation in patients with CKD undergoing HD.

Dyslipidemia, inflammation and oxidative stress (P117-P120)

P118

Brazil Nut (Bertholletia Excelsa) Consumption Reduces Protein Carbonylation in Non-Dialysis CKD Patients: A Randomized Controlled Trial

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Objective: Redox imbalance is common in patients with CKD and contributes to disease progression. In this context, protein carbonylation is a well-established marker of oxidative protein damage and oxidative stress. Brazil nut (*Bertholletia excelsa*), a rich dietary source of selenium (~5 g may provide up to 400 µg), has been shown to reduce oxidative stress in patients with CKD undergoing hemodialysis. However, evidence regarding its effects in non-dialysis CKD patients remains limited. This study aimed to evaluate the effects of Brazil nut consumption and selenium supplementation on protein carbonylation in these patients.
Method: This randomized controlled clinical trial included 61 patients with CKD. Participants were randomly assigned to receive for three months one Brazil nut per day (n = 21; 61.9% male; age 63.4 ± 12.3 years; BMI 29.5 ± 5.3 kg/m²; eGFR 44.1 ± 20.0 mL/min/1.73 m²), 200 µg of chelated selenium (n = 20; 55% male; age 63.5 ± 8.5 years; BMI 29.6 ± 5.6 kg/m²; eGFR 52.4 ± 14.9 mL/min/1.73 m²), or placebo (n = 20; 60% male; age 63.2 ± 14.1 years; BMI 28.3 ± 4.4 kg/m²; eGFR 49.0 ± 22.4 mL/min/1.73 m²). Plasma protein carbonyl levels were determined using the method described by Levine et al., based on the reaction with 2,4-dinitrophenylhydrazine (DNPH) and spectrophotometric detection.
Results: Brazil nut consumption significantly reduced plasma protein carbonyl levels (9.3 ± 3.2 to 6.6 ± 2.4 nmol/mg of protein, $p = 0.004$), whereas increases were observed in the selenium (9.6 ± 2.8 to 11.2 ± 2.1 nmol/mg of protein, $p = 0.03$) and placebo groups (5.5 ± 1.6 to 9.9 ± 2.9 nmol/mg of protein, $p < 0.001$). Initially, carbonyl levels were higher in the selenium and Brazil nut groups compared to the placebo group. After the intervention, the Brazil nut group showed significantly lower carbonyl levels than both the selenium and placebo groups ($p < 0.001$).
Conclusion: These findings suggest that Brazil nut consumption may represent a promising adjunct nutritional strategy to attenuate oxidative stress in non-dialysis CKD patients, outperforming isolated selenium supplementation in reducing oxidative protein damage.

Dyslipidemia, inflammation and oxidative stress (P117-P120)

P119

Sulforaphane Modulates the Serum Metabolomic Profile in Chronic Kidney Disease

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Objective: Chronic kidney disease (CKD) is characterized by metabolic disturbances, oxidative stress, and inflammation. Sulforaphane (SFN), a bioactive compound derived from cruciferous vegetables such as broccoli, broccoli sprouts, cabbage, and Brussels sprouts, has potent antioxidant properties and acts as a strong activator of the NRF2 pathway, a key regulator of cellular antioxidant defense. The purpose of this study was to assess the impact of SFN supplementation on the untargeted serum metabolomic profile in non-dialysis CKD patients.
Method: In a randomized, placebo-controlled trial, 14 patients with CKD stages 3–5 received SFN (400 µg/day) or placebo for 30 days. Serum samples were analyzed by proton nuclear magnetic resonance (^{1}H NMR) spectroscopy to identify metabolomic changes and their associations with oxidative stress, inflammation, and gene expression biomarkers.
Results: SFN supplementation showed a trend toward reduced serum levels of 2-hydroxyisovalerate ($p = 0.059$) and glycerol ($p = 0.059$), as well as attenuation of elevated methanol concentrations. These metabolites are associated with oxidative stress and metabolic dysfunction. Significant correlations were observed between heme oxygenase-1 (HO-1) and several amino acids, as well as between mRNA NRF2 expression and glycerol levels ($r = -0.374$), suggesting interactions between amino acid metabolism and antioxidant defense pathways.
Conclusion: SFN supplementation appears to modulate the metabolomic signature of CKD patients, particularly metabolites related to mitochondrial function, lipid metabolism, and redox homeostasis. NMR-based metabolomics proved to be a valuable noninvasive approach for exploring the molecular mechanisms underlying nutritional interventions in CKD. These findings support SFN as a promising nutraceutical strategy to improve metabolic regulation in CKD.

Dyslipidemia, inflammation and oxidative stress (P117-P120)

P120

Metabolomic Profiling by NMR Reveals Distinct Serum Signatures in Hemodialysis and Non-Dialysis Chronic Kidney Disease Patients

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Objective: CKD is characterized by metabolic disturbances and the accumulation of uremic toxins that contribute to disease progression and clinical complications. Metabolic profiles differ according to disease stage and treatment modality, particularly between patients undergoing hemodialysis (HD) and those receiving conservative treatment. Nuclear magnetic resonance (NMR)-based metabolomics enables the identification of metabolic signatures reflecting these alterations. This study aimed to compare the metabolomic profiles of CKD patients undergoing HD and those receiving conservative treatment, and to explore their associations with oxidative stress, inflammation, gene expression, and uremic toxins.

Method: In this cross-sectional study, HD and non-dialysis (ND) patients were evaluated. Oxidative stress was assessed by malondialdehyde (MDA), inflammatory cytokines by ELISA, and gene expression (NRF2, NF-κB, NQO1, HO-1, p16, and p53) by qPCR. Uremic toxins (indoxyl sulfate, p-cresyl sulfate, indole-3-acetic acid, and TMAO) were quantified by HPLC-based methods. Serum metabolomics was performed using ^{1}H NMR spectroscopy (600 MHz), and metabolites were identified using Chenomx software.

Results: Twenty-seven patients were included (13 HD and 14 ND). NMR-based metabolomics revealed distinct metabolic signatures between groups. HD patients exhibited higher levels of myo-inositol, methyl-oxovalerate, acetate, aspartate, histidine, glycerol, and dimethylglycine, while ND patients presented higher levels of betaine and methanol ($p < 0.05$). Myo-inositol correlated positively with indoxyl sulfate ($p = 0.77$; $p < 0.001$), p-cresyl sulfate ($\rho = 0.63$; $p = 0.0004$), MDA, and p16 expression ($p < 0.05$ for all). Methanol was negatively correlated with NRF2 expression ($r = -0.68$; $p = 0.006$). Hierarchical clustering clearly discriminated HD from ND patients based on metabolomic profiles.

Conclusion: NMR-based metabolomics identified treatment-dependent metabolic signatures in CKD. Integration of metabolomics with oxidative stress, inflammation, senescence, and gut-derived toxin markers revealed a complex network associated with uremic burden. Myo-inositol emerged as a potential biomarker linking oxidative stress, toxin accumulation, and cellular senescence.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P121

Associations of Obesity, Sarcopenia, and Sarcopenic Obesity with Chronic Kidney Disease Development in the Elderly Population

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Objective: Previous studies indicate that sarcopenia and obesity increase the risk of chronic kidney disease (CKD) in middle-aged populations. The relationship between sarcopenic obesity and CKD incidence in older populations is insufficiently explored
Method: Elderly individuals aged over 65 with preserved kidney function among UK Biobank participants were examined. Participants with an estimated glomerular filtration rate (eGFR) <60 ml/min/1.73m² or albuminuria were excluded. The individuals were categorized based on the presence of sarcopenia and obesity. Sarcopenic obesity was identified in those with concomitant obesity and sarcopenia. The development of CKD was determined using ICD-10 codes in claim and death register records.
Results: A total of 62,735 individuals were assessed, with a mean age of 66.9±1.5 years and 44.3% being male. Sarcopenia was identified in 8,648 individuals (13.8%), while obesity was present in 13,075 individuals (20.8%), resulting in a 3.29% prevalence of sarcopenic obesity. Over a median follow-up of 13.3 years, 5,567 participants (8.9%) developed CKD. After adjusting for confounding factors, the risk of CKD development in the obese without sarcopenia group was comparable to the non-obese without sarcopenia group (HR, 1.07, 95% CI, 0.99-1.15). However, elevated risk persisted in participants with sarcopenia and was most accentuated in those with sarcopenic obesity (non-obese with sarcopenia; HR, 95% CI, 1.22 [1.11-1.34]; obese with sarcopenia, 1.32 [1.15-1.50]).
Conclusion: Sarcopenia, not obesity, was significantly associated with an increased risk of chronic kidney disease (CKD) development in elderly individuals, with sarcopenic obesity showing the highest risk elevation for incident CKD in this group.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P122

Effect of prebiotic, probiotic and synbiotic supplementation on protein-energy wasting in people with chronic kidney disease: a systematic review and meta-analysis

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Objective: Protein-energy wasting (PEW) is common in people with chronic kidney disease (CKD). Gut dysbiosis may be a contributing factor to PEW due to the increased production of uraemic toxins known to cause sarcopenia. Prebiotics, probiotics and synbiotics are potential strategies for addressing PEW and gut dysbiosis simultaneously. This systematic review assessed the effects of supplementation with "biotics" on markers of PEW in people with CKD.
Method: A comprehensive systematic search was conducted from inception to 16 January 2026 in seven electronic databases and 2 trial registries. Included studies were RCTs in adults with CKD investigating the effects of prebiotic, probiotic, and/or synbiotic supplementation on markers of PEW including Subjective Global Assessment (SGA, primary outcome); other nutritional assessment tools; serum albumin, prealbumin and creatinine; dietary energy and protein intake; body mass index (BMI); body fat mass/percentage; muscle mass; handgrip strength and phase angle.
Results: Title and abstract screening included 2,618 studies of which 170 full-text articles were assessed for eligibility, and 49 studies met the inclusion criteria.
In people receiving dialysis, synbiotic supplementation was associated with a significantly lower likelihood of malnutrition/PEW occurring (3 studies, 109 participants: RR 0.43 [95%CI 0.20 to 1.08; P=0.03), and probiotics significantly increased SGA score (3 studies, 107 participants: MD 0.40 [95%CI 0.02 to 0.79; P=0.03).
In dialysis populations, probiotics increased serum albumin, and synbiotics improved energy intake. In people with non-dialysed CKD, synbiotics increased serum albumin and BMI.
Across all comparisons, the certainty of the evidence was judged to be low or very low, primarily due to high risk of bias and imprecision.
Conclusion: We found few studies that adequately assessed the effect of pre-, pro- and synbiotics on markers of PEW in people with CKD. Due to the low quality of the body of evidence, we are not certain that "biotics" supplementation has any beneficial effects on the nutritional status of people with CKD. Further well-designed and adequately powered RCTs are required to effectively examine the impact of pre-, pro- and synbiotics on PEW in people with CKD.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P123

Early malnutrition and sarcopenia in ADPKD: Organomegaly as a GFR-independent risk factor

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Objective: In CKD, malnutrition and sarcopenia typically develop in advanced stages as consequences of uremic toxicity, inflammation and metabolic derangements. In ADPKD, however, organomegaly may represent an additional, disease-specific driver of nutritional decline independent of GFR. We aimed to assess body composition and nutritional status using bioimpedance analysis (BIA) in ADPKD patients compared with non-ADPKD CKD controls, and to evaluate the impact of organomegaly.
Method: Cross-sectional case-control study enrolling 71 ADPKD pts and 71 non-ADPKD CKD pts matched by propensity score for age, sex, BMI, eGFR and comorbidities. BIA measured total body water (TBW), extracellular water (ECW), intracellular water (ICW), fat mass (FM), fat-free mass (FFM), skeletal muscle mass (SMM), and phase angle (PhA). Organomegaly was defined by MRI as TKV >750 mL, renal diameter >16 cm, or hepatic transverse diameter >25 cm.
Results: ADPKD pts showed significantly higher TBW and ECW compared to controls ($p<0.001$ and $p=0.004$), with no difference in ICW indicating cyst-related extracellular water accumulation rather than systemic fluid overload. Among 71 ADPKD patients, 41 (58%) had organomegaly. These patients exhibited significantly lower PhA (4.8 vs 5.2, $p=0.014$), FFM, FM, and SMM compared to non-organomegalic ADPKD patients, despite paradoxically higher BMI (25.4 vs 23.3, $p=0.027$). Crucially, in early CKD stages (1-3b), PhA was significantly reduced in organomegalic patients (4.89 vs 5.38, $p=0.025$), whereas no difference was observed in advanced stages suggesting organomegaly drives early malnutrition before uremic factors predominate.
Conclusion: Our findings reveal that organomegaly is an independent, GFR-unrelated risk factor for early malnutrition and sarcopenia in ADPKD. The paradox of increased BMI masking reduced muscle and fat mass highlights the limitation of conventional nutritional screening in these patients. PhA values in organomegalic ADPKD patients (4.8) approach thresholds associated with malnutrition and increased mortality risk. Contributing factors may include mechanical compression causing early satiety, altered glucose metabolism and chronic inflammation. Proactive BIA-based nutritional assessment should be implemented early in ADPKD patients with organomegaly, before advanced CKD develops

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P124

Preserving graft survival while reversing malnutrition: High-protein low-nitrogen diet with ketoanalogues in a kidney transplant recipient

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Objective: The principal challenge in kidney transplantation is to extend the lifespan of the graft as much as possible. However, clinical and nutritional management become a dilemma when a recipient presents with both severe Protein-Energy Wasting (PEW) and reduced graft function. In this scenario, a standard Low-Protein Diet (LPD) is contraindicated due to malnutrition, yet a standard High-Protein Diet (HPD) could be detrimental due to the increased nitrogen load. We hypothesized that utilizing Nitrogen-free ketoacids (KA) of essential aminoacids within a high energy HPD could decouple protein requirements from nitrogen burden.
Method: A 56-year-old kidney transplant recipient (stable GFR 25 ml/min, BUN 37 mg/dl, BW 55 kg, BMI 19.2 kg/m²) was admitted with bowel perforation requiring ileocolic resection. The postoperative course was complicated by multiple infections, necessitating antimicrobial therapies and modulation of immunosuppression. Upon discharge (2 months later), the patient exhibited severe PEW: BW 42 kg, BMI 14.7 kg/m², serum proteins 3.7 g/dl, albumin 2.1 g/dl, total cholesterol 64 mg/dl. Functional and bioelectrical parameters were critically low: Hand Grip (HG) 6 kg, 30'' sit-to-stand test (30StS) 0, and Phase Angle (PhA) 1.5°; spontaneous daily intake was 0.67 g/kg protein and 20.7 Kcal/kg; Malnutrition Inflammation Score: 27 points.
Results: A customized high energy-HPD (35 Kcal and 1g protein/kgBW/day) was prescribed, supplemented with KA (1 tablet/10 kgBW), to provide a total protein equivalent intake of 1.2 g/kg/day. At 3- and 6-months follow-up, PEW regressed: BW increased to 51 and 55 kg (BMI 18 and 19.2 kg/m²), serum protein to 5.8 and 6.1 g/dl, albumin to 3.4 and 3.9 g/dl, cholesterol to 154 and 181 mg/dl, HG 19 and 22 kg; 30StS 3 and 12 repetitions, PhA 2.5° and 2.9°. Crucially graft function remained stable (GFR 25 ml/min, BUN 46 mg/dl) with no adverse events.
Conclusion: Our experience suggests that a high-energy diet supplemented with ketoanalogues is a valuable "nitrogen-sparing" strategy for acutely malnourished kidney transplant recipients with compromised renal function. This approach enables nutritional recovery without the renal toxicity, thus preserving the kidney graft function.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P125

Longitudinal Association Between Bone Loss and Muscle Wasting in Hemodialysis Patients

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Objective: In patients undergoing hemodialysis (HD), loss of bone mineral density (BMD) and muscle mass are both common and prognostically relevant; however, longitudinal data on their concurrent changes remain limited. We examined whether changes in hip BMD over time were associated with concurrent changes in lean tissue index (LTI).
Method: We studied 272 stable HD patients who underwent dual-energy X-ray absorptiometry (hip, femoral neck, and lumbar spine BMD) and body composition monitoring at baseline and after approximately 2 years. Annualized percentage changes in hip BMD and LTI (Δ%/year) were calculated. Patients were categorized into tertiles of annualized hip BMD change (T1: greatest loss; T3: least loss/gain), and multivariable linear regression was used to identify independent predictors of ΔLTI.
Results: Patients in the tertile with the greatest hip BMD loss exhibited significantly greater declines in LTI compared with those in the intermediate and lowest-loss tertiles (−2.65 ± 9.70 vs 0.03 ± 8.59 and 1.27 ± 8.50 %/year, *P* for trend = 0.004). In the overall cohort, severe hip BMD loss remained independently associated with greater LTI decline (β = −0.176, 95% CI −5.31 to −0.34), and serum albumin ≤3.5 g/dL was also an independent predictor of ΔLTI. In stratified analyses, the association between hip BMD loss and LTI decline was evident only among patients with albumin ≤3.5 g/dL (β = −0.427, 95% CI −10.61 to −1.53), but not in those with higher albumin levels. Restricted cubic spline models demonstrated a graded, approximately linear relationship whereby greater losses of hip and femoral neck BMD were accompanied by larger declines in LTI.
Conclusion: Among HD patients, greater hip BMD loss tends to co-occur with more pronounced LTI loss, particularly in those with hypoalbuminemia. These findings suggest that concurrent deterioration of bone and muscle reflects a shared malnutrition–inflammation catabolic milieu.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P126

Frailty in hemodialysis patients: an observational study and systematic review of the literature

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Objective: Frailty is a condition typically associated with geriatric age, resulting in increased fatigue, weight loss, increased fatigability, and a general worsening of the response to disease. It is closely associated with chronic kidney disease, particularly in end-stage renal disease patients undergoing dialysis, due to the pathological mechanisms that characterize these conditions and accelerate the aging process.
This paper aims to present the results of an assessment of frailty in patients undergoing hemodialysis at the Nephrology and Dialysis Unit of the San Salvatore Hospital in L'Aquila (Italy) and to review the current state of the art.
Method: Eighty-five patients undergoing hemodialysis were enrolled and assessed for frailty using the Clinical Frailty Scale, the Short Physical Performance Battery, and the FRAIL Scale. Data on risk factors and adverse events occurring in the past year were also collected.
Results: 63.53% of patients were found to be frail. Among females, 77.78% were found to be frail, while among males, the figure was 56.9%. Age was found to be a risk factor, with a 14.54% probability (c.i.$_{95\%}$ 1.065-1.232) per year of age of worsening frailty ($p = 0.0003$); the absence of anemia was shown to be protective ($p = 0.0346$), and a diagnosis of diabetes mellitus appeared to increase the risk of frailty 45-fold ($p = 0.0060$). The absence of hypoalbuminemia appeared to be protective, as did arterial hypertension, however, these data didn’t reach statistical significance. Presence on the transplant list was significantly associated with frailty status: 41.9% of non-frail patients were on the list, compared to 7.4% of frail patients ($p = 0.0004$).
Conclusion: Frailty assessment in hemodialysis patients allows us to identify individuals at increased risk and implement personalized interventions regarding hemodialysis treatment, diet, and physical activity, with the goal of improving nutritional status and the sarcopenia associated with chronic kidney disease.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P127

Malnutrition Remains Significantly Underdiagnosed in the Chronic Kidney Disease Population

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Objective: Chronic Kidney Disease (CKD) increases the risk for malnutrition due to factors such as disease-related inflammation, dietary intake changes recommended for CKD management, interactions with medications, and nutrient losses during dialysis. Malnutrition rates vary widely – ranging between 11% and 54% - depending on the validated assessment tools used. This retrospective study identifies the prevalence of diagnosed malnutrition in CKD adult patients and describes diagnosed malnutrition rates by CKD stage.
Method: A limited 5% dataset of the 2023 Centers for Medicare and Medicaid Services claims were analyzed (N=3,479,418). Patients diagnosed with CKD, malnutrition, and altered levels of other micronutrients (potassium, phosphorus) were identified using ICD-10 diagnosis codes. Between group differences in prevalence rates were evaluated using the Chi-squared test.
Results: Patients had an average age of 71.2 years; 54.2% were female, 76.9% were white and 10.8% were black. 8.5% (n=295,532) of patients in the sample had CKD diagnosis. Patients with CKD had malnutrition diagnosis rate 7 times greater than patients without CKD (9.2% vs 4.3%, $p<0.01$). Higher prevalence of malnutrition was observed for patients with CKD Stages 4 and 5 (12.0%, 14.3%) than for patients with CKD stage 1 (6.5%, $p<0.01$) and CKD stage 2 (5.9%, $p<0.01$). Beyond malnutrition, patients with CKD also had higher prevalence of phosphorus disorders (4.4% vs 0.2%, $p<0.01$), and either high potassium (11.9% vs 0.62%, $p<0.01$) or low potassium (11.8% vs 1.9%, $p<0.01$).
Conclusion: Malnutrition diagnoses and altered micronutrient levels occur more frequently in patients with CKD compared with those without CKD, and these rates increase progressively with worsening CKD stage. However, the diagnosis rates identified in this study are lower than those reported in the existing assessment-based literature, suggesting persistent underdiagnosis of malnutrition and micronutrient deficiencies in clinical practice. These findings highlight the need to strengthen malnutrition assessment, diagnosis, and documentation for patients with CKD.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P128

Structural and functional assessment of sarcopenia in advanced CKD: risk of misclassification using single diagnostic tools

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Objective: Sarcopenia and protein-energy wasting (PEW) are highly prevalent in advanced chronic kidney disease (CKD) and critically influence nutritional management and clinical outcomes. Although current guidelines recommend a multidimensional diagnostic approach, routine clinical practice often relies on single assessment tools, potentially leading to misclassification. The aim of this work is to evaluate agreement between structural and functional sarcopenia assessment tools in advanced CKD and quantify the risk of misclassification associated with single-parameter evaluation.
Method: In this single-center cross-sectional study, 30 non-dialysis patients with CKD stages 3b–5 were assessed. Muscle mass was estimated by appendicular skeletal muscle mass index (ASMI) using bioelectrical impedance analysis. Muscle function was evaluated by handgrip strength, while sarcopenia risk was screened using SARC-F. Agreement between tools was assessed using contingency tables and chi-square tests. Sensitivity, specificity, and discordance rates were calculated.
Results: Sarcopenia prevalence varied substantially according to the diagnostic tool: 32.8% by ASMI, 46.4% by SARC-F, and 57.7% by handgrip strength. No significant agreement was observed between ASMI and SARC-F (p=0.706), with a discordance rate of 44.4% and ASMI sensitivity of 33.3% versus SARC-F. In contrast, handgrip strength showed significant agreement with SARC-F (p=0.001), with lower discordance (22.2%), 100% sensitivity, and 60% specificity.
Conclusion: Structural and functional assessments capture complementary but non-overlapping dimensions of sarcopenia in advanced CKD. Reliance on muscle mass alone may underestimate clinically relevant impairment, while functional tools alone may overestimate sarcopenia. Single-parameter diagnostic strategies carry a substantial risk of misclassification, with potential consequences for nutritional risk stratification and therapeutic decision-making. Integrated multidimensional assessment should be routinely adopted in advanced CKD nutritional evaluation.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P129

Malnutrition Screening in Hemodialysis: Two-Year Survival

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Objective: Malnutrition is common in hemodialysis (HD) patients and is associated with adverse outcomes. We aimed to assess malnutrition risk in HD patients using Malnutrition Screening Tool (MST) and Patient Generated-Subjective Global Assessment Short Form (PG-SGA SF) and their prognostic value for two-year mortality and hospitalization.
Method: In this prospective study, 227 HD patients were followed for 24 months. Baseline clinical and body composition data were collected. Nutritional risk was assessed and categorized using MST and PG-SGA SF. Mortality and hospitalization were recorded during follow-up and analyzed using Kaplan–Meier and Cox regression analysis (hazard ratios, HR[95%CI]). Multivariate model was adjusted for age, sex, HD vintage, diabetes, age-adjusted Charlson Comorbidity Index, overhydration, dialysis adequacy and vascular access. Receiver operating characteristic analysis assessed the discriminative ability for these outcomes (area under the curve, AUC[95%CI]). A $p<0.05$ was considered statistically significant.
Results: Median age was 72[61-80] years and 60.4% were men. Around 52% were at risk of malnutrition according to both tools. During follow-up, 51.1% were hospitalized and 20.9% died. Malnutrition risk assessed by MST and PG-SGA SF was associated with higher risk of hospitalization (HR 1.72[1.19–2.51], p=0.004; HR 1.84[1.26–2.68], p=0.002), even after adjustment for the multivariate model (HR 1.76[1.03–3.00], p=0.039; HR 1.79[1.02–3.13], p=0.044), but not after additional adjustment for PCR and albumin. MST and PG-SGA SF were associated with higher mortality in the unadjusted model (HR 2.24[1.22–4.15] p=0.01; HR 2.18[1.18–4.03], p=0.013). After multivariable adjustment, only MST remained statistically significant (HR 2.72[1.11–6.68], p=0.029), but not after additional adjustment to PCR and albumin. MST and PG-SGA SF showed similar predictive ability for hospitalization (AUC 0.591[0.517–0.666], p=0.018; AUC 0.610[0.540–0.687], p=0.003) and mortality (AUC 0.619[0.528–0.710], p=0.012; AUC 0.644[0.559–0.729], p=0.002).
Conclusion: MST and PG-SGA SF performed similarly in predicting hospitalization and mortality. Due to its simplicity, MST may be a more practical option for routine clinical screening.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P130

Driving better patient outcomes in dialysis through strategic dietetic services

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Objective: Research into long-term malnutrition and dietetic staffing trends within single health services remains limited. This retrospective cohort study aims to: describe changes in dietitian-to-patient ratio within a large Australian metropolitan dialysis service, assess compliance against best practice dietetic guidelines and report 10-year malnutrition prevalence in the dialysis population.
Method: Data were collated from nine retrospective point prevalence audits conducted between 2009 and 2024 across satellite, home haemodialysis (HHD), and peritoneal dialysis (PD) modalities. Nutritional status was primarily assessed using the Subjective Global Assessment, with the Mini Nutritional Assessment and Global Leadership Initiative on Malnutrition criteria added in 2024. Malnutrition prevalence was analysed across gender, age and dialysis vintage. Dietetic staffing was mapped using a benchmark of 1 full time equivalent dietitian per 143 patients (1:143). Audits evaluated malnutrition prevalence and dietetic service delivery against relevant best practice guidelines.
Results: From 2014-2024, dietitian staffing increased with patient growth, maintaining dietitian-to-patient ratios of 1:126 - 1:157. Nutritional assessment completion for HHD and PD modalities increased from 25-73% to 96-97% respectively, following the introduction of a dedicated clinic in 2024. Malnutrition at satellite dialysis sites fell from 26% to 18% within six months of the dietetic service initiating in 2009 and from 22% to 11% among HHD patients after appointing a dedicated renal dietitian in 2015. These improvements were sustained over time. Transient dialysis patients consistently had the highest malnutrition prevalence (25-33%), while HHD patients maintained the lowest rates (4-11%). Malnutrition prevalence was higher in older adults, females and patients with dialysis vintage under one year.
Conclusion: Sustained investment in dietetic staffing reduced malnutrition rates at this health service by enabling timely, guideline-aligned care. This demonstrates the critical role of dietitians in multidisciplinary renal care and the importance of adequate dietetic staffing.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P131

Kidney and Cardiovascular Outcomes of SGLT2 Inhibitors as Add-On Therapy to Metformin in Frail Patients with Type 2 Diabetes

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Objective: Sodium-glucose cotransporter-2 inhibitors (SGLT-2is) offer cardiorenal protection in type 2 diabetes (T2D) but raise concerns regarding adverse events like dehydration and muscle mass loss, particularly in frail elderly patients. Since randomized trials often exclude individuals with severe frailty, real-world evidence is essential to validate safety and efficacy in this vulnerable subgroup. This study compared long-term kidney and cardiovascular outcomes of SGLT-2is versus other second-line glucose-lowering drugs (oGLDs) in elderly T2D patients, stratified by frailty status.

Method: We utilized the Korean National Health Insurance Service-Senior cohort to conduct a retrospective study applying a target trial emulation framework to minimize biases. Eligible participants were aged ≥60 years, on first-line metformin, and initiated SGLT-2is or oGLDs. Frailty was assessed using five validated claims-based indices. Propensity score matching was performed to adjust for confounders, and both intention-to-treat and per-protocol analyses were conducted. The primary outcome was a composite of kidney events; the secondary outcome was major adverse cardiovascular events (MACE).

Results: The study included 151,134 patients, with 14.0% classified as frail. Among frail individuals, SGLT-2i use was associated with a significant 30% risk reduction in composite kidney outcomes and a 19% reduction in MACE compared to oGLDs. Comparable benefits were observed in non-frail patients. While findings were generally robust, the kidney benefit in frail patients lost statistical significance when frailty was defined specifically by the electronic or global frailty scores, indicating potential heterogeneity.

Conclusion: SGLT-2i therapy demonstrated consistent cardiovascular and kidney benefits in elderly T2D patients regardless of frailty status, supporting its utility as a second-line option. However, the potential attenuation of kidney benefits observed with certain frailty definitions warrants careful patient monitoring and individualized treatment planning in this high-risk population.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P132

Integrated Application of Nutritional and Functional Tools for the Detection of Sarcopenia in Advanced Chronic Kidney Disease: A Chilean Experience

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Objective: Evaluar la utilidad clínica de herramientas integradas nutricionales, funcionales y de imagen para detectar sarcopenia en pacientes con estadios ERC 4-5
Method: Estudio transversal realizado en adultos con ERC 4-5 de el Hospital de Talca, Chile, entre agosto de 2025 y febrero de 2026. La selección de los participantes se realizó mediante muestras aleatorias estratificadas. El protocolo de evaluación incluyó herramientas de tamizaje nutricional (MUST, SGA, MIS, GLIM, PEW), mediciones antropométricas (IMC, circ. pantorrilla y cintura), análisis de bioimpedancia (mBCA 525®) para parámetros de composición corporal, ecografía muscular del recto femoral, pruebas funcionales (SARC-F, fenotipo de fragilidad de Fried, índice de Barthel, fuerza de prensión manual mediante dinamómetro Jamar®) y biomarcadores de laboratorio (albúmina, transferrina, PCR, PTH, fósforo y creatinina). La sarcopenia se definió según los criterios adaptados del EWGSOP2. El análisis estadístico se realizó mediante ANOVA, considerando $p<0,05$ como estadísticamente significativo.
Results: Se incluyeron 30 pacientes (70% mujeres; edad: 50,4 ± 16,2 años; IMC: 29,0 ± 5,4 kg/m²). Se sospechó sarcopenia en el 50% de los pacientes según la SARC-F. De ellos, el 53,3% cumplió los criterios de sarcopenia probable, calculando en la reducción de la fuerza de presión manual. Se confirmó sarcopenia en el 13,3% mediante la medición de la masa muscular esquelética por bioimpedancia y el área del recto femoral por ecografía. Los parámetros funcionales y de imagen demostraron una capacidad de discriminación significativa entre pacientes sarcopénicos y no sarcopénicos.
Conclusion: Este estudio pionero en Chile demuestra que la sospecha de sarcopenia es alta en pacientes con ERC, aunque su confirmación es menor. La integración de evaluación funcional y ecografía muscular resulta ser un modelo viable y escalable que permite la detección temprana en entornos nefrológicos de Latinoamérica.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P133

Effects of a simple combined resistance-aerobic exercise approach on maintenance hemodialysis patients with sarcopenia

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Objective: To test the effects of a simple combined resistance-aerobic exercise approach on maintenance hemodialysis(MHD) patients with sarcopenia.
Method: Thirty MHD patients with sarcopenia in our hospital from March 2021 to December 2021 were randomly divided into control group(n=15) and intervention group(n=15). The intervention group received elastic belt resistance exercise(Fig.1) training for 12 weeks, three times a week in interdialysis. Cycling aerobic exercise(Fig.2) training was carried out during dialysis, while the control group was only given routine treatment without any exercise intervention. After 12 weeks of intervention, taking blood for biochemical examination before dialysis , inflammation, anthropometric indexes, human body composition by bioelectrical impedance, nutritional status by NRS2002, 7SGA and GNRI were collected, as well as their sleep quality and life quality. Independent sample T test, non-parametric test and Fisher's exact probability method were used to evaluate the equilibrium of baseline. For intra-group comparison, paired T test was used for normal distribution, and Wilcoxon test was used for non-normal distribution. $P<0.05$ is the difference with statistical significance.
Results: A total of 26 MHD patients with sarcopenia completed the trial. In patients in the intervention group(n=13), the hemoglobin increased, MAC, MAMC, waist circumference, calf circumference and nutritional status were obviously improved than which in the control group(n=13) , the serum creatinine and total cholesterol significantly decreased in the intervention group ($P<0.05$).However, there was no statistically significant difference in inflammation, most of body composition analysis index, sleep quality and most of life quality between the two groups ($P>0.05$).
Conclusion: The simple combined resistance-aerobic exercise approach was beneficial to increase HB level, improved nutritional status and reduced serum creatinine and blood lipid, but there was no significant improvement in inflammation index, body composition analysis index, life quality and sleep quality.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P134

Plant-based low-protein diet for preventing malnutrition?inflammation complex syndrome in adults with CKD: a single-centre preliminary experience

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Objective: Chronic kidney disease (CKD) is a rising public health concern. Low protein intake reduces uremic toxin generation and improves the hemodynamic profile of the kidneys, postponing the need for eventual dialysis. Vegetarian diets have been shown to positively influence cardiovascular health and reduce uremic toxin levels and inflammation in CKD patients. The so-called “Malnutrition-Inflammation Complex Syndrome” (MICS) is a nontraditional cardiovascular risk factor that is associated with poor overall outcomes in CKD patients. The type of protein, not only the amount, may be relevant in the prevention of MICS, but at present no studies are published in the literature addressing this topic. The aim of our study was to evaluate the feasibility and efficacy of a plant-based diet in reducing CKD-related complications and preventing MICS.
Method: Adult subjects with CKD (3–5 stages) were retrospectively recruited. Each patient was evaluated for biochemical parameters, anthropometric measurements, body composition, and pharmacological treatments at baseline and after 6 months of dietary intervention.
Results: After six months of treatment, significant improvements ($p < 0.05$) were observed in indices of kidney function, lipid and glycemic profiles, vitamin D levels, plasma fibrinogen, anthropometric and body composition parameters, as well as muscle strength, whereas no significant changes were detected in plasma albumin levels or in the other parameters assessed. As observed in recent literature, the risk of hyperkalaemia associated with plant-based regimens in CKD patients has been set aside.
Conclusion: Our preliminary study confirms the feasibility and efficacy of a plant-based diet in reducing CKD-related complications and preventing MICS.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P135

Improving Malnutrition Detection in Patients on Hemodialysis: The Role of Mid-Upper Arm Circumference-Adjusted Body Mass Index in the SARC-HD Cohort

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Objective: Mid-upper arm circumference (MUAC) is a useful surrogate marker of muscle mass, especially in the clinical setting. For individuals with a BMI≥25 kg/m^2, adjustments in MUAC have been proposed for correcting it to the excess of adiposity for diagnosing low muscle mass. This study aimed to assess the utility of BMI-adjusted MUAC in identifying malnutrition using the Global Leadership Initiative on Malnutrition (GLIM) framework in patients on hemodialysis (HD).
Method: A multicenter cohort (SARC-HD-Brazil) including patients on HD. Raw and BMI-adjusted MUAC were analyzed. The latter was applied when BMI was ≥25 kg/m², by subtracting 3 to 10 cm based on BMI range and sex. Malnutrition was defined according to GLIM: weight loss, low BMI, and/or low raw or BMI-adjusted MUAC (<28 cm for male and <25 cm for female) + etiologic criteria: disease burden due to dialysis (all patients met). To assess the clinical relevance of BMI-adjusted and unadjusted MUAC, associations with clinical, nutritional parameters, and outcomes were examined.
Results: 719 patients (57±15 years, 61% male) were included. Malnutrition diagnosed with GLIM was identified in 37% using unadjusted MUAC versus 51% with BMI-adjustment factors. Patients with malnutrition using unadjusted MUAC values had lower body weight, BMI, calf circumference (CC), serum creatinine levels, and subjective global assessment (SGA) score compared to patients without malnutrition. When BMI-adjusted MUAC was used, additional differences were observed, including higher age, %men, and %diabetes. No differences were found in the occurrence of hospitalization and mortality during the 12-month follow-up. In the multivariable analysis adjusted for age and sex, the variables independently associated with malnutrition in the model using unadjusted MUAC (R^2=0.444) were body weight, male sex, serum creatinine, and SGA score. In the model using BMI-adjusted MUAC (R^2=0.317), male sex, CC and SGA score remained as significant determinants of malnutrition.
Conclusion: BMI-adjusted MUAC identified more patients with malnutrition, likely because it better detected patients with overweight and low muscle mass but high fat mass. However, the value of this measurement for predicting malnutrition and outcomes requires further investigation.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P136

The prevalence of malnutrition, protein-energy wasting, sarcopenia, and sarcopenic obesity in Dutch hemodialysis patients: a multicenter study

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Objective: Malnutrition, protein-energy wasting (PEW), sarcopenia, and sarcopenic obesity contribute to increased morbidity, mortality, and a reduced quality of life in hemodialysis (HD) patients. This study aims to investigate the prevalence and overlap of these nutrition-related conditions and disorders in HD patients in the Netherlands.
Method: This is a multicenter cross-sectional study conducted in 21 Dutch dialysis centers, where data from adult HD patients were collected. Body composition was assessed using bioelectrical impedance analysis (BIA) at single frequency (SF-BIA), multiple frequencies (MF-BIA), and bioimpedance spectroscopy (BIS). Muscle strength was estimated by measuring handgrip strength. Nutritional status was evaluated using the following frameworks: Global Leadership Initiative on Malnutrition (GLIM), Protein-Energy Wasting (PEW), Subjective Global Assessment (SGA), Patient-Generated SGA (PG-SGA), European Working Group on Sarcopenia in Older People (EWGSOP2), and Sarcopenic Obesity Global Leadership Initiative (SOGLI). Overlap between these conditions was identified using VENN diagrams.
Results: Of the 128 included patients, 21% had obesity (BMI >30 kg/m²) and 38% had overweight (BMI ≥ 25-30 kg/m²). The majority of patients (59%) were classified as malnourished according to the GLIM criteria, with reduced muscle mass being the most common phenotypic feature (83%). PEW was diagnosed in 38% of patients, sarcopenia in 23%, and sarcopenic obesity in 5%. Moderate to severe malnutrition was identified in 47% of patients according to SGA (n = 89) and in 98% according to PG-SGA (n = 39). Substantial overlap was found between patients who met the criteria for GLIM, PEW, and EWGSOP2.
Conclusion: This study demonstrates a high prevalence of malnutrition, PEW, and sarcopenia in HD patients, while sarcopenic obesity is less common. The results highlight the need to evaluate muscle mass as an essential component of screening and diagnosing nutrition-related conditions and disorders in HD patients.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P137

Metabolic impact and nutritional safety of Low-Protein Diet in advanced Chronic Kidney Disease: Preliminary Prospective findings

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Objective: Nutritional therapy is a key component of conservative management in advanced chronic kidney disease (CKD). Low-protein diets (LPD) are recommended to reduce uremic toxin production and metabolic burden; however, concerns persist regarding their long-term nutritional safety, particularly the potential risk of protein-energy wasting and sarcopenia.
Method: We conducted a prospective observational study including 84 pre-dialysis patients with CKD stage IIIB–V followed in a nephrology outpatient clinic with scheduled visits every four months (± 2 weeks). The cohort included 34 diabetic (DM) and 50 non-diabetic patients. Baseline evaluation included biochemical parameters, dietary assessment using a Food Frequency Questionnaire, and multidimensional nutritional assessment. Body composition was evaluated through bioelectrical impedance analysis (BIA), while functional status was assessed using hand grip strength (HGS), chair stand test, and the SARC-F questionnaire. Nutritional risk was quantified using the Malnutrition Inflammation Score (MIS).
Results: The average follow-up period is approximately 8 months. Most participants presented advanced CKD, predominantly stage V (55%). Introduction of the LPD was associated with a significant reduction in serum urea levels (ΔBUN -37 mg/dL after 4 months; $p<0.001$ vs baseline), indicating decreased nitrogenous metabolic load, and a normalization of phosphorus level ($p<0.05$ vs baseline), Meanwhile, key nutritional indicators remained stable throughout follow-up: total protein, serum albumin, prealbumin showed no clinically relevant decline. BMI and functional parameters also remained largely unchanged, with stable HGS, chair stand performance and SARC-F scores. MIS values remained stable in the majority of patients, suggesting no significant deterioration in nutritional or inflammatory status.
This occurred in both diabetic and non-diabetic patients. Furthermore, DM patients showed no changes in glycated hemoglobin values throughout the follow-up period.
Conclusion: These preliminary results suggest that LPD is safe and effective and can reduce metabolic load without worsening glycemic metabolism or causing deterioration in nutritional status or physical function in patients with advanced CKD.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P138

Beyond Body Weight: Assessing Sarcopenia, Sarcopenic Obesity, and Nutritional Status in Chronic Kidney Disease at Tygerberg Hospital, South Africa

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Objective: Chronic Kidney Disease (CKD) is associated with an increased risk of malnutrition. Sarcopenia and sarcopenic obesity are prevalent within CKD, impacting overall health outcomes including increased risk of mortality and cardiovascular disease. The aim of the study was to assess body composition, nutrition parameters , sarcopenia and sarcopenic obesity in CKD participants
Method: A cross-sectional, descriptive study with an analytical component was conducted in Tygerberg Hospital, South Africa. Participants ≥18 years old and presenting with CKD stages 3b to 5 (pre-dialysis, hemodialysis, peritoneal dialysis) and kidney transplant recipients were included. Researchers measured and recorded participant information, anthropometry [weight, height, waist circumference, hip circumference, body mass index (BMI) and mid-upper arm circumference (MUAC)] and biochemistry. Sarcopenia was assessed using two approaches. First, the European Working Group on Sarcopenia in Older People (EWGSOP2) criteria were applied. Body composition was measured using InBody bioelectrical impedance analysis (BIA), and functional performance was evaluated using handgrip strength and the chair stand test. Second, muscle quantity was assessed using ultrasound by measuring the cross-sectional area of the rectus femoris muscle. The Global Initiative for Malnutrition (GLIM) tool was used to assess malnutrition. Stata version 18.5 was used for data analysis.
Results: One hundred participants (61% female, 39% male) were included. Body composition measurements were only recorded for 93 participants. The prevalence of sarcopenia was 9% (n=8), while probable sarcopenia was 72% (n=77), using EWGSOP2 criteria. Muscle ultrasound showed a 13% (n=12) prevalence of sarcopenia. The prevalence of sarcopenic obesity was 3.6% (n=4). Overweight and obesity were common, affecting 54% of the population, while a high body fat percentage was observed in 74% (n=69). The biochemical profile showed widespread abnormalities characteristic of CKD. The GLIM criteria showed a high prevalence of malnutrition (44%.).
Conclusion: The dual burden of malnutrition and high risk of sarcopenia found in this CKD population indicate the need for an intervention to improve overall body composition and nutritional status.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P139

Performance of Malnutrition-Inflammation Score (MIS) versus the PhilSPEN modified Subjective Global Assessment (mSGA) in identifying malnutrition among hemodialysis patients: Evidence from a prospective single-center study in the philippines

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Objective: The study aimed to assess the nutritional status and compare the malnutrition rates among hemodialysis patients using the MIS versus the PhilSPEN modified SGA (mSGA). In addition, it aimed to evaluate the diagnostic performance of both scoring tools and determined how these scores relate to the patients' demographic, clinical, anthropometric, biochemical and dietary characteristics.
Method: The study involved outpatient hemodialysis patients of at least 18 years old, scheduled twice or thrice weekly for at least 3 months at the Makati Medical Center Renal Care Services. An interview-based questionnaire was used to collect sociodemographic data, medical history including hemodialysis data, and dietary intake through a 3 day 24-hour food diary. A chart review was done to collect laboratory values.
Results: The study involved 115 patients and of these, 22.6% were assessed to have malnutrition. A series of linear regression analysis showed that higher MIS- indicating higher risk of malnutrition- was significantly associated with older age, female sex, elevated calcium and ferritin levels. On the other hand, lower MIS was associated with higher income and employment, higher height, weight, and MUAC. In addition, higher creatinine and BUN were also associated with lower MIS. No demographic or anthropometric data were significantly predictive of mSGA scores. Laboratory parameters indicated that higher neutrophils and lower lymphocytes were associated with higher mSGA scores. Diagnostic testing accuracy was also computed for both scoring tools. The MIS demonstrated the most favorable performance at a cut off of 7, while the mSGA at a cut off of 4. Both tools demonstrated a high specificity but with low sensitivity at these points however demonstrated a high accuracy value of 80% for MIS while 81.7% for mSGA.
Conclusion: The study revealed that both MIS and mSGA effectively assessed nutritional status and exhibited significant associations of demographic, anthropometric, biochemical, and clinical factors with MIS and mSGA scores. Optimal cutoffs showed high specificity but low sensitivity. However, comparison between MIS and SGA showed that neither scoring tool was significantly better compared to the other. But, both scoring systems showed strong specificity and fair discrimination.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P140

Downregulation of the hypoxia response in skeletal muscle of people with chronic kidney disease

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Objective: An emerging hypothesis is that hypoxia plays a central role in fatigue and reduced performance which are commonly observed in people with chronic kidney disease (CKD). Hypoxic adaptation is largely regulated by hypoxia-inducible factor 1 (HIF-1α) and peroxisome proliferator-activated receptor-gamma coactivator-1 alpha (PGC-1α). In this study, we hypothesized that the response to hypoxia through HIF-1α driven oxygen-sensing mechanisms is blunted in the skeletal muscle of CKD patients.
Method: HIF-1α and PGC1α gene expression were studied by rt-PCR and immunohistochemistry, were assessed in the rectus abdominis muscle biopsies from 31 patients with non-dialysis treated CKD (18 M/13 F, eGFR 8±1 mL/min) and were compared to 10 subjects with normal renal function (7M/3F).
HIF-1α, PGC1α expression was also studied in C2C12 myotubes exposed to 10% normal serum or to uremic serum (US) for 48 hours. In addition, factors related to mitochondria integrity such as Mitofusin-2 (MFN2), Nuclear Factor Erythroid 2-related factor 2 (NRF2), Oxidative phosphorylation (OXPHOS), were monitored by rt-PCR and/or Western Blot.
Results: Despite anemia (Hb 9.5 ±1 g/dl), HIF-1α mRNA was severely (by 50-65%) blunted in the muscle of CKD patients, as well as PGC1α ($p<0.05$) (Figure 1). Log HIF-1α mRNA was directly related to residual renal function (log eGFR $r=0.632$, $p<0.02$), suggesting that the hypoxic response in muscle progressively decreases as the renal function declines. In cultured myotubes, US decreases PGC1α, HIF1α, MFN2, NRF2, OXPHOS and membrane potential ($p<0.05$-0.01)
Conclusion: In patients with advanced stage CKD as well as in an in vitro uremic model, PGC1α and HIF1α are markedly downregulated. These findings are in keeping with the impaired oxidative metabolism which characterizes advanced CKD and they may account for the fatigue often referred by these patients. One could hypothesize that the HIF prolyl hydroxylase inhibitor (HIF-PHIs), currently in clinical development for treatment of CKD-related anemia, may also be targeted on myopathy and fatigue in CKD.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P141

Malnutrition in maintenance hemodialysis: Prevalence, patterns, and clinical implications in Bangladesh

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Objective: Malnutrition is a major clinical challenge among patients receiving maintenance hemodialysis (HD) and is associated with increased morbidity and mortality. The burden is particularly pronounced in resource-limited settings, where systematic nutritional assessment and management remain limited. This study aimed to determine the prevalence of malnutrition and identify its associated factors among HD patients in Bangladesh.
Method: A cross-sectional study was conducted among 181 maintenance HD patients from dialysis centers across four districts in Bangladesh. Nutritional status was assessed using the International Society of Renal Nutrition and Metabolism (ISRNM) criteria and the Malnutrition Inflammation Score (MIS). Demographic, clinical, and dialysis-related variables were collected. Multivariable logistic regression analysis was performed to identify factors associated with malnutrition.
Results: Based on the ISRNM criteria, 42.5% of patients were malnourished, including 10.5% with severe malnutrition. Using the MIS tool, 72.9% of participants were classified as malnourished, indicating a substantial burden of poor nutritional status among HD patients. Patients who reused dialyzers more than twice had significantly higher odds of malnutrition (AOR = 5.8; 95% CI: 1.2–28.7). In addition, older age, lower body mass index (BMI), and the presence of diabetes mellitus were independently associated with poorer nutritional status.
Conclusion: Malnutrition is highly prevalent among maintenance HD patients in Bangladesh. Dialyzer reuse, older age, lower BMI, and diabetes were significant predictors of malnutrition. Strengthening routine nutritional screening and implementing validated assessment tools may facilitate early identification of at-risk patients and improve clinical outcomes in resource-constrained dialysis settings.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

P142

Sarcopenia has a dynamic trajectory over 12 months in patients on hemodialysis: the SARC-HD cohort study

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Objective: Sarcopenia trajectories and their predictors remain largely unexplored among patients undergoing hemodialysis. Thus, we investigated the longitudinal sarcopenia trajectories and identified predictors in this population.
Method: In this Brazilian multicenter cohort, patients were evaluated for physical function and muscle mass at baseline and after a 12-month follow-up. Sarcopenia was diagnosed according the European Working Group on Sarcopenia in Older People (EWGSOP2) criteria. Based on sarcopenia status at baseline and follow-up, transitions over the 12-month period were used to classify patients as: no sarcopenia (at baseline and follow-up), remission (transition from any stage to no sarcopenia), ameliorated (attenuation to a less severe stage), maintenance-sarcopenia (remaining at a sarcopenia stage), and worsening (progression to a more severe stage).
Results: Of the 983 patients enrolled in the baseline cohort, 265 were not included in the 12-month analysis due to death (n=74) or loss to follow-up (n=191), resulting in a final sample of 718 patients, of whom 40% were female, 46% were White, and 49% were aged ≥60 years. At follow-up, 67.5% remained no sarcopenia, 6.0% achieved remission, 1.3% improved, 15.9% remained stable, and 9.3% worsened. Over 12 months, significant changes were identified in handgrip strength (−0.52 kg; 95% CI, −0.87 to −0.16), calf circumference (−0.16 cm; 95% CI, −0.31 to −0.01), and gait speed (+3.07 s; 95% CI, 2.90 to 3.25). Sarcopenia trajectories were independently associated with older age, male sex, White ethnicity, marital status, diabetes mellitus, multimorbidity, physical activity, and overweight status, revealing substantial bidirectional heterogeneity in sarcopenia status over time, with both improvement and deterioration occurring over time.
Conclusion: Among patients undergoing hemodialysis, sarcopenia trajectories exhibited marked interindividual variability over 12 months, with both improvement and deterioration observed. Identifying independent predictors of these trajectory patterns may enable more refined risk stratification and inform the development of targeted clinical trials.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

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Use of Essential Amino Acids and Ketoanalogues in Hemodialysis Patients with Protein Energy Wasting

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Objective: Use of Essential Amino Acids and Ketoanalogues (EAA-KA) in HD patients with PEW provides a substrate for protein synthesis while limiting the rise in blood urea nitrogen levels. The high calcium content in the tablets limits the dosage for these patients.
Method: The observational retrospective study was conducted on 9 HD patients with PEW who were treated with EAA-KA at a dose of 1 tablet per 10 kg of body weight for 6 months. The diagnosis of PEW was based on the Malnutrition Inflammation Score (MIS), serum Albumin levels, and Bioimpedance analysis: Phase Angle (PA), Body Cell Mass Index (BCMI), Extracellular Water (ECW), Extra Cellular Mass to Body Cell Mass ratio (ECM/BCM). Body Mass Index (BMI) is also reported. We report data (media and standard deviation) on nutritional status before (T0) and 6 months after (T6) the start of treatment. Statistics: Student's t-test compared to baseline.
Patient characteristic: 6 males, 3 females, mean age 78.8 years (SD 12.7), Charlson Comorbidity Index 8.33 (SD 2.78), length of dialysis treatment 22.7 months (SD 34.3).
Results: T0: MIS 15.3 (SD 5.2); Albumin 3.29 g/dL (SD 0.33); PA 3.88° (SD 0.79), Body Cell Mass Index BCMI 7.18 kg/m^2 (SD 1.86), ECW 22.1 L (SD 3.99), ECM/BCM 1.57 (SD 0.50), BMI 23.5 kg/m^2 (SD 4.43)
T6: MIS 8.67 (SD 4.15; p <0.001*); Albumin 3.65 g/dL (SD 0.43; p 0.002*); PA 5.18° (SD 2.26, p 0.068), BCMI 8.93 kg/m^2 (SD 3.57; p 0.066), ECW 18.4 L (SD 3.91; p 0.016*), ECM/BCM 1.2 (SD 0.47; p 0.029*), BMI 23.3 kg/m^2 (SD 5.3; p 0.576).
Conclusion: The significant increase in serum albumin levels is the key finding of this study; this led to a significant reduction in ECW (due to greater tolerance to ultrafiltration during dialysis), an improvement in "muscle quality" (ECM/BCM), and a decrease in MIS in these patients. This suggests a potential reduction in cardiovascular risk as well. BMI remained unchanged. The small sample size and retrospective nature of the study do not allow for definitive conclusions but may suggest the need for larger studies.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

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Prozessgesteuerte Ernährungstherapie verbessert die Lebensqualität und das klinische Ergebnis unterernährter Hämodialysepatienten

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Hintergrund: Es besteht ein nachgewiesener Zusammenhang zwischen einem beeinträchtigten Ernährungsstatus und einem verschlechterten Behandlungsergebnis bei Hämodialysepatienten. Die Evidenz für die Wirksamkeit einer Ernährungstherapie in diesem Zusammenhang ist begrenzt. In dieser Studie untersuchen wir den Nutzen einer prozessorientierten Ernährungstherapie hinsichtlich klinischer Ergebnisse und Patientenergebnisse.
Methode: Wir führten eine einarmige Machbarkeitsstudie mit unterernährten Patienten (SGA B oder C) durch, die zu Beginn der Hämodialyse eine 12-monatige prozessgeleitete Ernährungsintervention erhielten. Veränderungen des Ernährungsstatus, prognostischer Marker und Lebensqualität (KDQOL-SF) wurden alle drei Monate erfasst. Zudem wurde der Zusammenhang zwischen Ernährungsstatus, Therapieparametern, Mortalität, Hospitalisierungsbedarf und Lebensqualität untersucht.
Ergebnisse: Von 45 eingeschlossenen Patienten beendeten 35 die Intervention. Es zeigte sich eine signifikante Reduktion der Anzahl unterernährter Patienten sowie Verbesserungen im Phasenwinkel, Albumin und Glasgow Prognose-Score. Die Werte in den Bereichen psychische Gesundheit, körperliche Rolle und emotionales Wohlbefinden stiegen an ($p<0,05$). Es bestand kein Zusammenhang mit der Mortalität; eine Verbesserung von SGA C zu SGA B oder A führte zu 1,9 bzw. 1,2 weniger Krankenhaustage. Intradialytische oder konventionelle parenterale Ernährung sagte eine Reduzierung der Krankenhausaufenthaltsdauer um 2,1 bzw. 10,6 Tage voraus.
Zusammenfassung: Unsere Ergebnisse deuten darauf hin, dass eine prozessorientierte Ernährungstherapie bei der Behandlung von Mangelernährung bei Hämodialysepatienten wirksam ist. Zukünftige Studien müssen ihre Wirksamkeit im Vergleich zur herkömmlichen Standardtherapie bestätigen.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

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Hospitalisation, malnutrition and frailty: a case study and personal perspective

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Objective: Frail older adults with chronic kidney disease (CKD) face complex nutritional challenges on hospital admission. Malnutrition risk may go unrecognised with serious adverse consequences and the patient perspective is under-reported. The aim is to demonstrate how personal proximity offers insights beyond that of clinical experience.
Method: A descriptive case study from the dual perspective of a close family member with a background of professional training and experience in renal nutrition and dietetics. Permission was given.
Results: An 85-year old was admitted with gradual deterioration and acute vomiting and diarrhoea. He was diagnosed with E. Coli bacteraemia. During a 44-day admission, he developed acute kidney injury, hyperkalaemia, COVID 19 pneumonitis and reduced cognition, speech and swallowing. Medical history included CKD, Parkinsons Disease (PD), diabetes mellitus, heart failure and recent chemotherapy for a diffuse B cell lymphoma with painful mouth lesion. Despite multiple indicators, including infection, anorexia, nausea, poor intake and dysphagia, standard hospital screening did not identify malnutrition risk and nutrition seemed relatively low priority. Isolation from family, communication difficulties and imposed dietary restrictions further contributed. There was weight loss, physical deterioration and limited scope for rehabilitation. Recognising the nutritional deficit (>50% requirements), intake barriers and malnutrition risk helped to guide menu choices, dietary fortification, referral to the ward dietitian and nutritional supplement use. Post-discharge guidance supported recovery, improved mobitity and patient and carer wellbeing.
Conclusion: The importance of the patient perspective is increasingly recognised. A personal experience of malnutrition provided important insights into the challenges of prioritisation, prevention and treatment. Malnutrition was predictable, opportunities for intervention were missed. Carer education and empowerment were key. This indicated a need to improve the multiprofessional management of malnutrition and the importance of effective communication and ongoing input. Individualised nutritional strategies and community support can promote successful treatment and rehabilitation.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

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Impact of Nutritional Status on the Progression of Aortic Calcification in Maintenance Hemodialysis Patients

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Objective: Abdominal aortic calcification (AAC) is a major complication in patients undergoing maintenance hemodialysis (HD) and is strongly associated with increased cardiovascular morbidity and mortality. Malnutrition in end-stage kidney disease (ESKD) is linked to poor survival, frequent hospitalization, and higher cardiovascular risk, including vascular calcification. The Geriatric Nutritional Risk Index (GNRI), based on serum albumin and body weight, is a validated tool for assessing nutritional status in chronically ill populations. The purpose of this study was to evaluate the association between malnutrition and progression of aortic calcification in patients on maintenance hemodialysis.
Method: This longitudinal study included 102 HD patients followed for six months. AAC was assessed using Kauppila scores from lateral lumbar spine radiographs at baseline and at six months. Clinical, demographic, and biochemical data were collected, including comorbidities, dialysis-related factors, and inflammatory markers. Nutritional status was assessed using GNRI, with scores <92 indicating nutritional risk. Univariate logistic regression was used to examine associations with AAC progression.
Results: At baseline, 53 patients (52%) had AAC, with a mean score of 2.07 ± 3.71. At six months, AAC progression was observed in 70 patients (68.6%), with a mean score of 3.67 ± 4.84. The mean GNRI was 93.76 ± 5.47. AAC progression occurred in 11 of 19 patients with nutritional risk and 59 of 83 without risk (OR 0.56, 95% CI 0.20–1.56, p=0.27), showing no significant association. Factors associated with AAC progression included older age, diabetes mellitus, cardiovascular disease, longer HD duration, elevated phosphate, iPTH, calcium–phosphate product, C-reactive protein, and lower HDL levels.
Conclusion: GNRI remains a useful marker of nutritional status; however, it was not independently associated with AAC progression in this study. Malnutrition may contribute to vascular calcification alongside other clinical and biochemical factors rather than acting as a primary determinant. Early nutritional interventions may still play a role in reducing inflammation and potentially slowing calcification in ESKD patients.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

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Dynapenic obesity in Chronic Kidney Disease: Divergent Roles of Adiposity and Muscle Mass

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Objective: Sarcopenia in chronic kidney disease (CKD) involves both muscle mass loss and functional impairment, but their relationship with obesity remains unclear. This study evaluated associations between bioimpedance-defined sarcopenia, functional performance, and adiposity, and explored their links with diabetes and CKD.
Method: We analyzed 250 patients with clinical, biochemical, and body composition data. Sarcopenia was defined by skeletal muscle index (SMI) from bioimpedance analysis, and function by SARC-F and Short Physical Performance Battery (SPPB). Adiposity was assessed by BMI and fat mass percentage (FM%). CKD was defined as eGFR <60 mL/min/1.73 m². Associations were assessed using Spearman correlation and odds ratios (OR).
Results: Pre-sarcopenia or sarcopenia was present in 46.0% of patients, including 18.0% with sarcopenia. SARC-F and SPPB were strongly correlated (rho = -0.57, $p<0.001$). Higher adiposity was associated with worse function (SARC-F vs FM% rho = 0.284; SPPB vs FM% rho = -0.228; both $p<0.001$), but inversely with muscle mass (SMI vs FM% rho = -0.352, $p<0.001$). Obesity (BMI ≥30) increased the likelihood of functional impairment (OR 2.32, $p=0.0037$) but was inversely associated with sarcopenia (OR 0.04, $p<0.001$). CKD was associated with both functional and structural sarcopenia (SARC-F ≥4 OR 2.65, $p=0.0009$), whereas diabetes was linked to adiposity but not sarcopenia. HbA1c showed no significant associations.
Conclusion: Two distinct phenotypes emerge: obesity-related functional impairment and true muscle wasting with lower BMI and SMI. CKD, rather than diabetes, appears to be the main driver of sarcopenia. Bioimpedance analysis measures muscle quantity rather than function; in obese individuals, intramuscular fat infiltration (myosteatosis) may reduce contractile quality and strength per unit of muscle mass, resulting in preserved muscle quantity but impaired function. Therefore, integrated assessment of muscle mass and performance is essential to identify high-risk patients.

Malnutrition, Protein energy wasting, Frailty and sarcopenia (P121-P148)

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Physical activity is associated with protein energy wasting, frailty and psychological distress in patients with chronic kidney disease without renal replacement therapy: a cross-sectional study

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Objective: To determine the association between physical activity and protein energy expenditure, frailty, and psychological stress in patients with Chronic Kidney Disease without Renal Replacement Therapy (RRT).
Method: Cross-sectional association study in patients over 18 years of age with CKD without RRT. Questionnaires were administered to determine physical activity (IPAQ-SF) and psychological stress (HADS), and assessments were performed to determine the presence of frailty (Fried criteria) and protein energy wasting (EGS-7 points) in participants.
Results: An association was found between PA and PWE (adjusted OR of 0.41, p=0.043); an association between PA and frailty (adjusted OR of 0.17, p=0.002); and an association between PA and psychological stress (adjusted OR of 0.56, p=0.027).
Conclusion: We observed a protective effect of PA on PEW, frailty, and psychological stress in patients with CKD without RRT from moderate stages, which could favor improved physical functionality, psychological well-being, and a lower risk of adverse events.

Micronutrients and dietary supplements (P149-P152)

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Effect of oral consumption of a symbiotic gelatin on the presence of gastrointestinal symptoms, quality of life and nutritional status in people with chronic kidney disease (CKD) with and without replacement therapy in Mexico

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Objective: To evaluate the effect of oral consumption of symbiotic gelatin for six weeks on the presence of gastrointestinal symptoms, quality of life and nutritional status in people with chronic kidney disease (CKD) with and without replacement therapy
Method: Multicenter clinical trial, three intervention groups over 18 years of age undergoing hemodialysis (HD), peritoneal dialysis (PD), and without renal replacement therapy (RRT). Demographic data, presence of comorbidities, gastrointestinal symptoms, Bristol scale, subjective global assessment (SGA), anthropometric indicators, and quality of life (KDQOL-36) were evaluated, as well as dietary assessment (kcal, macronutrients, fiber, and fluids) using two 24-hour recalls, and biochemical blood tests at the beginning and end of the study. The groups consumed a daily portion of 40 g of a symbiotic oral gelatin (water, agave inulin, soluble corn fiber, oat beta-glucans and a probiotic mixture of S. thermiphilus, L. acidophilus, and B. longum, avocado oil) for 6 weeks.
Results: 48 participants, n=16 per group. Average age 45.7 years, 47.9% male, 45.8% with diabetes mellitus, and 93.8% with high blood pressure. The reduction in gastrointestinal symptoms such as nausea, vomiting, diarrhea, intestinal inflammation, constipation, and delayed gastric emptying was favorable in all three groups. In the group without RRT, quality of life increased from 25% to 62.5%; energy and protein consumption decreased ($p<0.05$), and GFR remained stable; constipation and diarrhea decreased, with 100% of patients without RRT having normal stools at the end of the intervention. In HD patients, nutritional status (VGS) improved from 43.8% to 93.8% ($p<0.031$). In the PD group, normal stool consistency (Bristol) improved from 25% to 43.8%, with diarrhea decreasing from 75% to 56%. In these last two groups (HD and PD), dietary intake remained stable. Biochemical parameters and body composition remained stable during the intervention.
Conclusion: Supplementation with a symbiotic gelatin for 6 weeks in patients with CKD on or off replacement therapy could be a viable dietary strategy, reducing gastrointestinal symptoms such as diarrhea and constipation, improving quality of life, and contributing to improved nutritional status.

Micronutrients and dietary supplements (P149-P152)

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Effects of a curcumin-fortified gelatin protein product on inflammatory biomarkers: A randomized double blind placebo controlled trial

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Objective: Systematic inflammation remains a driver of muscle loss and poor nutritional status in adults on maintenance hemodialysis. Bioactive compounds like curcumin may alleviate inflammation in this population. The purpose of this study was to determine the effect of a gel-based oral nutrition supplement (ONS) with curcumin on inflammatory biomarkers compared to gel-based ONS.
Method: A 12- week double-blind randomized placebo-controlled trial was conducted with adults on chronic hemodialysis (n=31). Participants were randomized to consume either 90 g (22.8 g total protein) of gel-based ONS with curcumin (268 mg) or without curcumin an hour prior to the end of their dialysis treatment session for 8 weeks. The remaining 4 weeks were for sustained carry-over effects. Monthly, whole blood was collected to determine high sensitivity C-reactive protein (hsCRP), serum albumin, electrolytes, parathyroid hormone, ferritin, iron saturation, and transferrin. At baseline, 8 and 12 weeks, 3-day 24-hour recalls that included spice consumption were collected. Descriptive statistics, repeated measures ANOVA, and linear mixed-effects model were conducted using R, with significance set at $p < 0.05$.
Results: Participants – 54.8% male (n=17), 67.7% African American (n=21) with average dialysis vintage of 8 years, consumed the entirety of the product throughout the intervention with no aversions. Compared to control, the intervention reduced hsCRP at 8 weeks (-0.62±0.08 vs 1.16±0.30-fold; $p<0.01$). After discontinuation of the gel-based ONS with curcumin, levels rebounded at 12 weeks for both groups (1.51±0.40, $p<0.01$). In both groups, at 8-weeks, there was a 0.3g/dL increase in serum albumin ($p<0.01$). A significant decrease in albumin of 0.25 for control and 0.22 for the intervention group was observed ($p<0.01$) at week 12. There were no differences in other makers when comparing intervention to control over the study length. Diet and spice intake remained the same throughout the study.
Conclusion: A gelatin ONS with curcumin reduces acute phase inflammation only when administered continuously. Lengthier clinical trials and assessment of other inflammatory markers and oxidative stress should be conducted to confirm these results.

Micronutrients and dietary supplements (P149-P152)

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Effect of agave inulin on constipation and quality of life in Peritoneal Dialysis (PD) patients in México

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Objective: To compare the impact of agave inulin supplementation vs. the use of osmotic laxatives on constipation, gastrointestinal symptoms and quality of life in peritoneal dialysis patients
Method: A controlled clinical trial was conducted involving subjects with <3 months of PD onset, >18 years of age with constipation (Bristol scale or Rome IV criteria), and a gastrointestinal symptom questionnaire was administered. An assessment and nutritional plan based on KDOQUI guidelines were provided with one group receiving agave inulin supplementation at 9 g/day and another receiving lactulose at 10 ml every 8 hours with follow-up for 6 months.
Results: 38 participants, inulin group (n=20) and lactulose group (n=18); after the intervention and supplementation, there was a decrease in the presence of constipation from 65% to 25% (inulin) and from 61.1% to 11.1% (lactulose) on the Bristol scale, and from 100% to 30% (inulin) and from 77.8% to 22.2% (lactulose) on the Rome IV criteria. Three symptoms decreased (inulin) vs. two symptoms (lactulose) in Rome IV criteria; on the Bristol scale, an improvement in stools considered normal was observed from 25% to 65% (inulin) and from 33.3% to 50% (lactulose). The gastrointestinal symptom questionnaire showed a decrease in intensity and even disappearance of the symptom at the beginning and end in 7 symptoms (inulin) vs. 4 symptoms (lactulose). All of the above results obtained a P = <0.05. No significant differences were observed in quality of life, dietary intake, biochemical indicators or body composition between the groups.
Conclusion: Nutritional assessment and supplementation with agave inulin in PD patients with constipation is not inferior in the correction of gastrointestinal symptoms and shows superiority in stool consistency and number of bowel movements per day, being an alternative to treatment with lactulose.

Micronutrients and dietary supplements (P149-P152)

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Effects of broccoli sprout extract supplementation on uremic toxins, metabolites, and vitamin K in patients with chronic kidney disease: a randomized controlled trial

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Objective: Sulforaphane (SFN), abundant in broccoli sprout extract (BSE), has been linked to beneficial metabolic effects. In a randomized controlled trial (RCT) in individuals with type 2 diabetes (T2D) and chronic kidney disease (CKD), we evaluated whether BSE supplementation affected circulating uremic toxins, metabolites, and vitamin K, and explored predictors of SFN changes.

Method: This multicentre double-blind placebo-controlled RCT included adults with T2D and CKD stages 3b–4. Participants were randomly assigned to receive escalating doses of BSE, maximum 150 µmol/day (27 mg), corresponding to 750 µmol (133 mg) SFN, or placebo for 12 weeks. Circulating SFN concentrations were measured at baseline and week 12. Analysis of covariance assessed changes in uremic toxins, metabolites, and vitamin K between the BSE and placebo groups, while multivariable regression evaluated predictors of week-12 SFN concentrations.

Results: 99 participants were included (age 74±7 years, BMI 31 kg/m², 68% men), with similar baseline characteristics in the BSE (n=50) and placebo (n=49) groups. In metabolites analyses, only circulating betaine remained significantly higher in the BSE group after correction for multiple testing (adjusted mean difference 0.22 (95% CI 0.07–0.38) mmol/L, FDR-adjusted p=0.04). Week-12 SFN concentrations were higher in participants receiving BSE compared with placebo (adjusted mean difference 5.77 (95% CI 2.57–8.96) ng/mL, FDR adjusted p=0.02). In multivariable linear regression analyses adjusted for baseline SFN and clinical characteristics, treatment allocation was the only factor associated with week-12 SFN levels (B=5.72, 95% CI 2.81–8.63, p<0.001). Substantial inter-individual variability in SFN concentrations was observed among participants receiving BSE. In exploratory analyses restricted to the BSE group, younger age was associated with higher SFN levels (b=-0.14, 95% CI 0.76–0.99, p=0.04).

Conclusion: BSE supplementation substantially increased circulating SFN levels in individuals with T2D and CKD. Metabolites analyses suggest limited effects on circulating uremic toxins, metabolites, and vitamin K, with the exception of betaine. Baseline clinical characteristics did not appear to strongly predict week-12 SFN concentrations.

Non-dialysis CKD and kidney transplant (P153-P157)

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Impact of Nutritional Markers on Day of Transplantation on 1-Year Outcomes

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Objective: Malnutrition is a key driver of post-kidney transplantation (KT) complications but remains insufficiently characterized in this setting. Although its long-term prognostic impact has been demonstrated, few nutritional parameters have been validated in KT candidates to predict outcomes during the early post-transplant period, when infectious, surgical, and cardiovascular risks are highest.
Method: This prospective, single-center cohort study included patients undergoing KT between February 2023 and April 2024, with 1-year follow-up. Upon admission, several markers were assessed, including handgrip strength, the SEFI® visual intake scale, and clinical/biologic parameters. The Geriatric Nutritional Risk Index and Prognostic Nutritional Index (PNI) were calculated. Uni- and multivariate analyses evaluated associations with initial length of stay, cumulative rehospitalization days over 1 year, infection-related hospitalizations, and death or graft loss.
Results: A total of 113 patients (median age 59 years; 59.5% male) were included; 26% had diabetes. Median BMI at day 0 was 25.4 kg/m². Dynapenia on day 0 was observed in 27.9%. Dynapenia (OR 4.58; p=0.01) and elevated BMI (p=0.004) were associated with prolonged initial hospitalization. BMI <23 kg/m² was associated with higher risk of infection-related hospitalizations (OR 4.57; p=0.001) and increased rehospitalization days within 1 year (OR 2.93; p=0.009). Higher PNI was associated with reduced infectious hospitalizations (OR 0.9; p=0.006). Dynapenia was associated with increased risk of death or graft loss (OR 7.78; p=0.024).
Conclusion: Dynapenia, BMI <23 kg/m², and lower PNI were unfavorable prognostic indicators in KT. If confirmed, these findings could allow identification of high-risk patients for early post-transplant complications and support pre-transplant nutritional interventions for prevention.

Non-dialysis CKD and kidney transplant (P153-P157)

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Nutritional Status Evolution in Patients Undergoing a First Kidney Transplant: A Cohort Study

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Objective: Nutritional status and body composition in kidney transplant (KT) are essential to improve quality of life and prevent long-term metabolic complications. Aim: To evaluate changes in nutritional status and body composition during the first six months following a first living-donor KT.

Method: Prospective cohort study in adults undergoing a first living-donor KT at a tertiary-level hospital in Mexico. Biochemical parameters, dietary quality (Mini-ECCA), nutritional status (SGA), body composition (BCM), and functional capacity (dynamometry) were assessed before KT and at 1, 3, and 6 months. Friedman and Cochran tests were applied (SPSS v.25).

Results: 31 recipients were included (median age 33 years; 58% male); 64% were on hemodialysis pre-KT and 68% received immunosuppression with tacrolimus, micofenolyc acid, and prednisone.

Nutritional evolution results are shown in the Table

Variable	Baseline n31	1 month n25	3 months n21	6 months n14	p-value
Creatinine (mg/dL)	13±4	1±0.5	1±0.3	1.2±0.5	0.002
Hemoglobin (g/dL)	11±2	13±2	14±3	15±2	0.001
Phase Angle (°)	6±0.6	5±0.7	5±0.8	6±0.7	0.001
LTI (Lean Tissue Index, kg/m²)	13±2	11±2	12±2	13±2	0.001
FTI (Fat Tissue Index) kg/m²).	9±4	9±3	9±3	9±3	0.693
SGA (Well-nourished, %)	74%	80%	80%	93%	0.003
Healthy Diet (%)	26%	100%	77%	79%	0.001
Grip Strength (kg)	25±9	26±9	28±5	29±7	0.115

Conclusion: Living-donor KT induces immediate kidney function improvement; however, body composition declines in the post-transplant period, likely attributable to the catabolic impact of the surgical event, with possible recovery at months 3 and 6, yet failing to surpass pre-transplant dialysis values. The improvement of SGA appears to be related to the reduction of gastrointestinal symptoms and daily functionality, rather than the recovery of muscle or fat mass. Dietary quality improved at month 1, but a marked decline in adherence was observed at months 3 and 6, which may be associated with the lack of body composition recovery.

Non-dialysis CKD and kidney transplant (P153-P157)

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Changes in Body Composition Assessed by Bioimpedance Spectroscopy in the Early Post-Kidney Transplant (KT) Period

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Objective: During the immediate post-KT period, changes in body composition and hydration status may occur, which may influence patient's clinical course. Aim: To evaluate changes in body composition and hydration during early post KT using bioimpedance spectroscopy.

Method: A prospective cohort study was conducted in adult patients undergoing a first living-donor KT at a tertiary-care hospital in Mexico. Biochemical parameters and body composition (assessed by BCM) were evaluated before KT and at 24 hours, 5 days, and 1 month after KT.

Results: A total of 29 recipients were included (median age: 33 years; 69% male); 52% had a diagnosis of chronic kidney disease for more than 5 years. Additionally, 97% of patients received an immunosuppressive regimen consisting of tacrolimus, mycophenolic acid, and prednisone. The results of body composition changes over time are presented in Table 1.

Variable	Pre-KT n29	24h post-KT n25	Discharge n25	1month n17	p-value
Creatinine(mg/dL)	13.1±2.90	4.38±2.08	1.24±0.33	1.13±0.26	<0.0001
Potassium(mmol/L)	5.65±0.78	4.64±0.56	5.07±0.58	4.57±0.39	<0.0001
Body mass index(kg/m²)	25±6.3	25±6.3	24±6.1	23±5.3	0.002
Overhydration(L)	-0.2±2.62	0.97±1.54	1.02±1.76	0.78±0.98	0.27
Lean Tissue Index(kg/m²)	13.3±2.96	11.8±2.40	11.1±2.19	10.1±2.15	0.005
Fat Tissue Index(kg/m²)	12.2±6.61	13.4±7.32	13±6.92	12.9±6.46	0.37
Extracellular/intracelullar water	0.78±0.09	0.88±0.1	0.9±0.1	0.9±0.11	0.11
Body cell mass(kg)	20.9±6.89	18.1±6.35	16.3±5.31	14.5±5.79	0.007
Phase angle(°)	5.88±0.80	5.15±0.52	5.04±0.73	4.80±0.54	0.02

Conclusion: KT recipients experience a marked catabolic state in the early post-KT period. Within the first month, bioimpedance spectroscopy revealed reductions in total body water, phase angle, lean tissue index, and body cell mass, despite improvements in renal function and metabolic parameters, suggesting its usefulness for early post-KT monitoring.

Non-dialysis CKD and kidney transplant (P153-P157)

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Sustained Adherence to a Low-Protein Diet Reduces the Risk of Renal Replacement Therapy and Death in Chronic Kidney Disease

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Objective: CKD is associated with progressive loss of kidney function and increased risk of renal replacement therapy (RRT) and mortality. Nutritional management, particularly adherence to a low-protein diet (LPD), is considered an important strategy to slow disease progression. This study aimed to evaluate the association between adherence to an LPD and the risk of progression to RRT or death among patients with CKD followed at a renal nutrition clinic.

Method: We conducted a retrospective study of adult patients with CKD stages 3–5 (non-dialysis) from a single center in Brazil between 2010 and 2024, selected based on the availability of medical records. Dietary adherence was assessed using 24-hour dietary recalls and classified as adherence to an LPD when ≥50% of visits met the criterion of protein intake ≤0.8 g/kg/day (±10%), or non-adherence when <50% of visits met this criterion. This approach allowed the evaluation of longitudinal dietary behavior rather than relying on a single cross-sectional dietary assessment. The primary outcome was a composite of death or RRT. Cox proportional hazards models were adjusted for age, sex, and baseline eGFR. The proportional hazards assumption was evaluated using Schoenfeld residuals; evidence of a violation of this assumption for the adherence variable led to the use of a piecewise Cox model with a cutoff at 24 months.

Results: Among 391 patients, 275 were adherent to the LPD (eGFR 30.0 [20–40.8] mL/min/1.73 m²) and 116 were non-adherent (eGFR 32.0 [22.5–43.6] mL/min/1.73 m²) ($p>0.05$). After 24 months, adherence to the LPD was associated with a significantly lower risk of the composite outcome (HR = 0.382, 95% CI 0.160–0.912; $p = 0.030$), corresponding to an approximately 60% lower risk, and this association remained significant after adjustment for confounders, suggesting a clinically meaningful protective association between long-term dietary adherence and CKD outcomes.

Conclusion: Sustained adherence to an LPD was associated with a substantially lower risk of death or progression to RRT after 24 months of follow-up. These findings highlight the importance of long-term dietary protein restriction, supported by specialized nutritional care, as a key component of conservative management in CKD.

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In-hospital glycemic patterns during kidney transplant hospitalization and post-transplant diabetes mellitus

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Objective: Post-transplant diabetes mellitus (PTDM) is a metabolic complication after kidney transplantation with an incidence between 9% and 40%, associated with higher risks of cardiovascular disease, graft loss, and mortality. Early glycemic disturbances during post-surgical hospitalization may reflect underlying metabolic vulnerability and help identify patients at higher risk for PTDM. To characterize in-hospital glycemic patterns during kidney transplant hospitalization and evaluate their relationship with PTDM development.
Method: This retrospective cohort study included adult kidney transplant recipients (KTR) followed between 2016 and 2023. Capillary glucose measurements were analyzed, including maximum capillary glucose, glycemic coefficient of variation (CV), and time in range (TIR), evaluated overall and by time of day (fasting morning, before lunch, before dinner, and bedtime). Insulin therapy data were also collected. Continuous variables were compared using parametric or non-parametric tests, as appropriate.
Results: A total of 123 KTR were included, of whom 61 (49.6%) developed PTDM. The mean age was 50 ± 13 years and 61% were male. Patients who developed PTDM showed higher glycemic levels and variability. Median maximum capillary glucose was significantly higher in the PTDM group (282 [239–320] vs. 216 [201–251] mg/dL). Glycemic variability was also greater (CV 30% [27–37] vs. 26% [22–30]), while TIR was lower (73% [60–83] vs. 91% [84–96]). Differences were consistent across all time-of-day measurements, with the largest divergence observed before lunch (214 vs. 160 mg/dL) and before dinner (281 vs. 210 mg/dL). Insulin therapy was more frequent among patients who later developed PTDM (70% vs. 42%); however, initiation was delayed in this group (4.2 ± 3.7 vs. 2.1 ± 3.7 days).
Conclusion: KTR who developed PTDM presented a distinct in-hospital glycemic profile characterized by higher glucose peaks, greater glycemic variability, reduced time in range, and delayed insulin initiation. Glycemic disturbances during hospitalization may help identify patients at higher risk for PTDM, and early intervention may reduce this risk.

Special populations: children, geriatric patients (P158-P160)

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Evaluating the Cultural Appropriateness and Health Literacy Demand of Online Nutrition resources for First Nations Kidney Health

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Objective: First Nations Peoples experience disproportionately high rates of kidney failure due to ongoing impacts of colonisation. Online nutrition resources must meet cultural and literacy needs to support proactive kidney health management and prevention. This study examines the cultural appropriateness and health literacy demands of online nutrition resources for CKD prevention and management in these communities.
Method: Using a mixed-methods design, the quantitative phase involved scoring each resource against the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) framework for cultural appropriateness and the online Health Literacy Lab's Health Literacy Editor for readability and language complexity. The qualitative analysis consisted of content analysis by clinically trained dietitians and First Nations researchers to identify key cultural themes and assess the resources' alignment with First Nations perspectives. Findings were integrated at reporting, where resources were assessed for cultural positioning, authorship, and alignment with community priorities.
Results: Eighteen online nutrition resources were identified. The average AIATSIS score was 9.2 out of 17 items (range: 6.0-14.0). The average readability score was 7.73, with 39% resources exceeding the recommended threshold of <8.0. The health literacy demand of resources varied, with 39% exceeding recommended readability thresholds, and 44% contained excessive complex language, complicating comprehension. The actionable opportunities to enhance cultural safety and relevance included: (i) online nutrition resources should be co-designed with meaningful involvement from diverse First Nations communities, clearly acknowledging Indigenous authorship, artwork, and cultural contributions; (ii) use strengths-based language, reflect diverse identities and cultural practices; and (iii) seek endorsement from Indigenous-governed bodies to ensure cultural safety and relevance.
Conclusion: Online nutrition resources for First Nation Peoples kidney health varies across acceptable cultural appropriateness and health literacy thresholds. The findings underscore the need for continued efforts to develop culturally relevant and accessible health resources to support First Nations Peoples in managing CKD.

Special populations: children, geriatric patients (P158-P160)

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Evolution of the nutritional status of patients with primary nephrotic syndrome, during the first year of follow-up, in the pediatric nephrology service of the Nuevo Hospital Civil de Guadalajara "Dr. Juan I. Menchaca"

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Objective: To evaluate the evolution of the nutritional status of patients with primary nephrotic syndrome (PNS) during the first year of follow-up, in the pediatric nephrology service of Nuevo Hospital Civil de Guadalajara.
Method: Retrospective cohort study of a single group; children diagnosed with PNS between January 2017 and April 2022 were included. Only children with baseline nutritional data and at least one subsequent assessment (weight, height, and BMI) were included. These data were compared with age- and sex-specific reference standards to determine nutritional status. Additionally, the cumulative corticosteroid dose was calculated, and relapses and steroid responsiveness were recorded.
Results: Twenty-six children with PNS were included, with a median age of 3.4 years. At diagnosis, between 3% and 37% were overweight or obese depending on the index used (weight-for-height, weight-for-age, or BMI-for-age); 8% had short stature for age. Nutritional status was analyzed in 24 children. No statistically significant changes were observed in height-for-age Z-scores or BMI-for-age between baseline and at 6 and 12 months. Similarly, there were no differences in the proportions of short stature, malnutrition, or obesity.
The total cumulative dose of steroids was 302 mg/kg, being higher in the first six months. No association was found between nutritional indicators at 6 and 12 months and cumulative steroid dose. However, a higher cumulative steroid dose at 6 months was associated with a lower height-for-age Z-score at 12 months, although this did not reach statistical significance.
Conclusion: The nutritional status of patients with PNS treated with corticosteroids appears to be maintained during the first year, although there was a tendency towards an increase in the frequency of overweight and obesity, as four children developed it at one year of follow-up.

Special populations: children, geriatric patients (P158-P160)

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Renal function and nutritional status in older people in an outpatient setting

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Objective: Nutritional status and kidney function are closely related in older adults, yet both are often underassessed in outpatient settings despite their clinical importance. We aim to evaluate the association between kidney function and nutritional status in older adults attending an outpatient clinic.
Method: We conducted a cross-sectional analysis using nutritional records from adults >60 years with at least one serum creatinine measurement. The estimated glomerular filtration rate (eGFR) was calculated using the CKD-EPI 2021 equation. Patients with terminal cancer, renal replacement therapy, or missing data were excluded. Nutritional status was assessed using the Mini Nutritional Assessment-Short Form (MNA-SF) and anthropometric measures. A trained dietitian carried out all measures during the same nutrition counselling visit. Laboratory parameters were taken from clinical records within 3 months of the nutritional assessment visit. Group comparisons were performed by eGFR category, and multivariable analysis was used to evaluate the association between kidney function and nutritional status.
Results: A total of 121 patients were included in the analysis (mean age 75 years; 78.5% women). According to eGFR, 24.8% were classified as in group G1, 32.2% in group G2, and 42.9% had eGFR <60 mL/min. Those with lower eGFR had lower body weight, smaller mid-arm and calf circumferences, and lower grip strength. In multivariable analysis, eGFR <60 mL/min was independently associated with malnutrition assessed by MNA-SF (β = -2.0; 95% CI: -4.15 to -0.19).
Conclusion: Reduced kidney function is associated with poorer nutritional status in older adults. These findings support the need for integrated nutritional and renal assessment in outpatient care. Low-cost measures such as calf circumference and screening tools may offer a practical alternative for early detection of nutritional risk and support the use of simple anthropometric measures.

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