Conclusions: CKD patients have a higher sodium-mediated BP response with comparable change in sodium status but a different SVR change as compared to HC. In HC, impaired sensitivity to the NO donor nitroglycerin associates with higher BP response to sodium. No such association was found in CKD patients, suggesting that persistent endothelial dysfunction is pivotal for salt sensitivity in CKD.

BAROREFLEX SENSITIVITY AND HEMODYNAMIC RESPONSES DURING PHYSICAL AND MENTAL TESTS: A COMPARATIVE STUDY BETWEEN HEMODIALYSIS AND PERITONEAL DIALYSIS PATIENTS

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Objective: Cardiac arrhythmias and sudden death are the leading causes of mortality in end-stage kidney disease (ESKD) and autonomic dysfunction is considered a key and predominant role. This is the first study to compare baroreflex sensitivity (BRS) and hemodynamic responses after mental- and physical-stimulation maneuvers between hemodialysis (HD) and peritoneal (PD) patients.

Design and method: 68 ESKD patients (34 HD and 34 PD patients matched for age, sex, and dialysis-vintage) were included. Continuous recordings from Finometer-PRO at rest and during mental-arithmetic, orthostatic, and handgrip-exercise tests were used for calculation of BRS and hemodynamic responses in each individual.

Results: The two groups were similar in terms of age, sex, dialysis vintage and major comorbidities. BRS during mental (HD: 3.59±2.62 vs PD 5.60±1.90 ms/ mmHg, p=0.280) and physical stress tests (orthostatic: HD 3.23±2.24 vs PD 2.07±1.79 ms/mmHg, p=0.777) was similar between HD and PD patients. During mental test, both groups presented increases in SBP/DBP levels compared to rest (SBP HD: 156.3±27.7 vs 142.7±20.0mmHg, p=0.05; PD: 158.0±25.6 vs 143.1±23.6mmHg, p=0.05, respectively), but without significant between-group differences (p=0.835/p=0.611 respectively for SBP/DBP). Similarly, no significant between-group differences were noted in stroke volume, cardiac output, and total peripheral resistance during the same testing period. The mean SBP levels during the orthostatic test were significantly decreased compared to rest in both groups (HD: 135.4±26.8 vs 142.2±20.1 mmHg; p=0.05; PD: 135.3±21.9 vs 143.1±23.6 mmHg; p=0.05), but the overall response was not different between groups (p=0.937). Similarly, the responses to the other hemodynamic parameters were similar between HD and PD. Finally, the hemodynamic responses during handgrip exercise and recovery were not different between HD and PD.

Conclusions: BRS and hemodynamic responses to mental and physical stress tests were similar between HD and PD patients, suggesting that ANS function in ESKD is not affected by dialysis modality.

EFFECTS OF PROTEINURIA ON MUSCLE OXYGENATION AND MICROVASCULAR REACTIVITY IN PATIENTS WITH PRE-DIALYSIS CKD: A POST-HOC ANALYSIS

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Objective: Vascular dysfunction is a hallmark of CKD. Previous studies showed an impaired microvascular reactivity in the skeletal muscles, which deteriorates in advanced CKD stages. This analysis aims to examine the impact of proteinuria on cerebral oxygenation during mental, physical stress in patients with pre-dialysis CKD.

Design and method: 66 patients with CKD stage 2-4 were included in this post-hoc analysis; 24-h urine samples were used for evaluation of proteinuria. All participants underwent a 3-min intermittent handgrip exercise (HG) at 35% of their maximal voluntary contraction. Changes in cerebral oxygenation (oxyhemoglobin-O2Hb and deoxyhemoglobin-Hb) and regional blood volume (total hemoglobin-tHb) were continuously recorded during HG-exercise by near-infrared spectroscopy (NIRS).

Results: No significant differences between the 2 groups were detected in age (proteinuric vs nonproteinuric: 68.4±10.6 vs 67.2±10.8; p=0.676), eGFR (41.3±18.9 vs 46.3±14.8; p=0.28) and BMI (28.4±4.9 vs 28.1±4.8; p=0.803). The MMSE score (proteinuric vs nonproteinuric: 28.0±1.7 vs 28.0±1.7; p=0.938) and MVC (22.3±7.0 vs 23.9±7.5; p=0.416) were not significantly different between groups. The average response in cerebral oxygenation during exercise was lower in patients with proteinuric CKD (O2Hb: 10.2±0.87 vs 16.1±0.95; p=0.018 and dO2Hb: 1.53±9.7 vs 2.07±1.25; p=0.065). The tHb response (index of regional-blood-volume) was also lower in patients with proteinuria (0.51±1.08 vs 1.16±0.92; p=0.013); however, no differences in Hb (b=0.50±0.55 vs -0.45±0.54; p=0.717) - an index of oxygen extraction capacity among groups were detected. In univariate linear analysis the level of proteinuria did not show significant correlations with NIRS parameters.

Conclusions: The presence and not the level of proteinuria is associated with impaired brain activation during a mild physical task in patients with predialysis CKD. Future studies evaluating the role of proteinuria in the decline of cerebral function and cognitive impairment are needed.
RENOPROTECTIVE EFFECTS OF DAPAGLIFLOZIN IN NON-DIABETIC CKD PATIENTS

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Objective: Sodium-glucose co-transporter 2 inhibitors (SGLT2i) have demonstrated significant cardiorenal protection benefits in recent years, irrespective of the presence of diabetes mellitus (DM). These agents have emerged as pivotal in reducing albuminuria and impeding chronic kidney disease (CKD) progression. This study aimed to evaluate the renal effects of dapagliflozin, an SGLT2i, in non-diabetic proteinuric patients with CKD.

Design and method: In this prospective observational study we analyzed medical records of adult non-diabetic patients with CKD, in our outpatient department over the period of one year. Exhibiting albuminuria, and under stable renin-angiotensin system blockade. The primary objectives were to assess dapagliflozin’s impact on estimated glomerular filtration rate (eGFR) within the first month and changes in 24-hour proteinuria from baseline.

Results: Between November 2022 and December 2023, dapagliflozin was prescribed to 37 patients (8 women) with a mean age of 59.8±11.6 years. Primary diagnoses of CKD included IgA Nephropathy (7/37), other glomerulonephritides (9/37), hypertension (6/37), unknown (9/37), and other (6/37). Baseline median creatinine was 1.60±0.60 mg/dL, eGFR was 54.1±21.6 mL/min/1.73m², and proteinuria was 1047.0 mg/24h (IQR 240-2170), serum potassium 4.77±0.41 mmol/L, blood pressure 130±15 / 82±9 mmHg, body weight 85±16.8 kg. After the first month, median creatinine was 1.75±0.7 mg/dL (p=0.02 vs baseline), eGFR was 50.7±21.3 mL/min/1.73m² (p=0.006 vs baseline). Two patients experienced >30% serum creatinine increase within 4 weeks, leading to SGLT2i discontinuation. After a median follow-up of 233 days (IQR 80-284), creatinine was 1.71±0.75 mg/dL (p=0.06 vs baseline), eGFR was 51.6±23.6 mL/min/1.73 m² (p=0.019 vs baseline), and proteinuria decreased by 33.7% from baseline (450, IQR 270-1110). One patient stopped SGLT2i due to recurrent urinary tract infection. Changes were observed in serum potassium, body weight and blood pressure throughout the study period.

Conclusions: Treatment with dapagliflozin in non-diabetic patients with CKD reduced effectively proteinuria with an initial, reversible, decline in serum creatinine.

THE PREVALENCE AND RISK FACTORS FOR ARTERIAL HYPERTENSION IN CHILDREN WITH IDIOPATHIC NEPHROTIC SYNDROME

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Objective: Arterial hypertension (AH) is claimed to be an uncommon finding in children with idiopathic nephrotic syndrome (INS). The study aimed to analyze blood pressure, prevalence, and risk factors of AH in children with INS.

Design and method: In 153 children with INS (9.3±3.84 years, 100 boys), we evaluated systolic and diastolic blood pressure (mm Hg, Z-scores), age at onset of the disease, anthropometric data, response to steroids, results of kidney biopsy, number of INS relapses, and medications.

Results: The mean age at disease onset was 4.39±2.38 years; 67 patients had steroid-sensitive nephrotic syndrome (SSNS), 12 frequently relapsing nephrotic syndrome (FRNS), 58 steroid-dependent nephrotic syndrome (SDNS), and 16 steroid-resistant nephrotic syndrome (SRNS). Kidney biopsy was performed in 26: 5 – minimal change disease, 11 – mesangial proliferation, 10 – focal and segmental glomerulosclerosis. AH at disease onset was found in 10 (6.5%) patients in the following 11 (7.2%) after corticosteroid initiation. The observation period was 4.93±3.80 years, and AH was found in 31 (20.3%) – in 3 (4.5%) patients with SSNS, 2 (16.7%) with FRNS, 20 (34.5%) with SDNS, and 6 (37.5%) with SRNS. Patients with AH had lower height Z-score (-0.46±0.20 vs. 0.18±0.15, p=0.006), higher BMI Z-score (1.15±1.10 vs. 0.41±1.09, p=0.001), number of INS relapses (8.32±6.78 vs. 4.41±3.82, p<0.001), and current prednisone dose (0.49±0.67 vs. 0.18±0.29 [mg/kg/24h], p=0.001). Systolic blood pressure Z-score at the end of observation correlated with age (r=-0.192, p=0.017), BMI Z-score (r=0.368, p=0.001), and present prednisone dose [mg/kg/24h] (r=0.186, p=0.021), diastolic blood pressure Z-score with BMI Z-score (r=0.231, p=0.004), and number of INS relapses (r=0.163, p=0.044). In Cox Proportional Hazard presence of SSNS and SRNS were the only predictors of AH (SSNS: HR=4.80, 95CI(1.30-17.75), SRNS: HR=4.77, 95CI(1.06-21.53)).

Conclusions: 1. Approximately one-third of patients with SSNS and SRNS develop arterial hypertension in the course of the disease. 2. Steroid dependence and steroid resistance are the strongest predictors of AH in children with INS. Other determinants of blood pressure development in this group of patients are high BMI and a high number of relapses.

TIME IN TARGET RANGE OF SYSTOLIC BLOOD PRESSURE AND EGFR SLOPE IN PATIENTS WITH TYPE 2 DIABETES

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Objective: Time in target range (TTR) of systolic blood pressure, a novel measure to assess the effect of blood pressure control, is attracting attention in recent European guidelines. However, few studies have explored the renoprotective value of systolic TTR in patients with type 2 diabetes (T2D).

Design and method: We used the database of the Action to Control Cardiovascular Risk in Diabetes (ACCORD) blood pressure (BP) trial, and 4409 eligible participants were enrolled in the present study. The systolic target range for the standard and intensive therapy was defined as 120 to 140 mm Hg and 110 to 130 mm Hg, respectively.

Results: After adjustment for covariates, systolic TTR was significantly and positively associated with 2 indices of eGFR slope (P < 0.0016), regardless of additional adjustment for systolic blood pressure average and variability. The association of systolic TTR and eGFR slope was significantly stronger in CKD patients than those without CKD (P for interaction <0.044). When TTR was treated as a categorical variable, participants with the highest systolic TTR in the CKD group had a significantly positive association with eGFR slope (P < 0.00046). Similar results were obtained in the further subgroup analysis.

Conclusions: Among patients with diabetes, systolic TTR showed a significant and positive association with eGFR slope, with a stronger association observed in those with CKD. TTR reflects both blood pressure level and stability across blood pressure management, emphasizing the importance of maintaining stable blood pressure control for renoprotection in T2D patients, particularly in those with CKD.

IMPACT OF HYPERTENSION ON OUTCOMES IN PATIENTS WITH MEMBRANOUS NEPHROPATHY

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Objective: Hypertension often accompanies glomerular diseases. There is existing data regarding the relationship between hypertension and worse outcomes in primary membranous nephropathy (MN). We aimed to evaluate the impact of hypertension on both renal and cardiovascular outcomes in cases with primary MN.

Design and method: All patients diagnosed with MN between 2001 and 2022 were screened and cases with accessible data were enrolled. Coronary revascularization, occurrence of atrial fibrillation, stroke, venous thromboembolic events and all-cause mortality were determined as cardiovascular outcomes. Progression to end-stage renal disease was described as the renal outcome.

Results: A total of 172 patients were included. Mean age of the study population was 47.6±14.2 years and 57.6% of them were male. Hypertension was present in 74 (43%) patients. Patients with hypertension were older (54.8±12.1 vs.