

PATTERNS AND PREVALENCE OF DYSELECTROLYTEMIA IN NON-DIALYSIS CHRONIC KIDNEY DISEASE OUTPATIENTS: A RETROSPECTIVE ANALYSIS FROM A TERTIARY CARE CENTER IN NORTH INDIA



Sourabh Sharma*, Himanshu Verma, Anupam Agarwal, Pallavi Prasad

* Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi

BACKGROUND

- Dyselectrolytemia is a frequent complication in CKD and can significantly impact clinical outcomes, particularly as the disease progresses
- This study aims to evaluate the prevalence and patterns of dyselectrolytemia among non-dialysis CKD outpatients at a tertiary care center in North India

METHODS

- Retrospective study (508 patients enrolled)
- All non-dialysis CKD patients who attended Nephrology outpatient department between May 2024 and July 2024
- Patients' serum creatinine (eGFR calculation using CKD-EPI equation), electrolytes, & iPTH
- Patients' comorbidities, basic disease, & medications prescribed also recorded

RESULTS

- 198 patients (38.97%) diabetic, 97 (19.2%) CAD, and 41 (8%) hypothyroid
- Most common underlying kidney disease- Chronic interstitial nephritis (37%), followed by Diabetic kidney disease (34%), Chronic glomerulonephritis (14%), and ADPKD (8%)
- iPTH levels measured in 180 patients (elevated in 77% cases)
- Dyselectrolytemia prevalent across all CKD stages (Table 1), with most common abnormality being hyperkalemia (55%), followed by hypocalcemia (45%), hyperphosphatemia (36%), and hyponatremia (23%)
- Fifty-nine cases (11.6%) found to have all electrolytes within normal limits (34 in CKD stage 2 and 21 in stage 4)
- Hyperkalemia present in 67 (57%) patients in stage 3, 108 (60%) in stage 4, and 98 (81%) in stage 5ND CKD, showing a significant correlation with advancing CKD ($p < 0.001$)
- Hypocalcemia detected in 49 (42%) patients in stage 3, 95 (53%) in stage 4, and 72 (59%) in stage 5ND CKD, also demonstrating significant correlation with CKD progression ($p < 0.001$)

RESULTS

Dyselectrolytemia	Stage 2 (n=86)	Stage 3 (n=118)	Stage 4 (n=179)	Stage 5ND (n=121)	P value
Hypernatremia (n=16)	0	03	05	08	0.059
Hyponatremia (n=117)	02	35	54	26	< 0.001
Hyperkalemia (n=281)	08	67	108	98	<0.001
Hypokalemia (n=37)	03	06	21	07	0.054
Hypercalcemia (n=33)	05	03	11	14	0.053
Hypocalcemia (n=231)	15	49	95	72	< 0.001
Hyperphosphatemia (n=183)	02	22	78	81	< 0.001
Hypophosphatemia (n=13)	0	03	07	03	0.327

Table 1: Pattern of dyselectrolytemia in different stages of CKD

- Hyperphosphatemia noted in 22 (19%) patients in stage 3, 78 (44%) in stage 4, and 81 (67%) in stage 5ND CKD, with a highly significant association with advanced CKD ($p < 0.001$)
- Hyponatremia observed in 35 (30%) patients in stage 3, 54 (30%) in stage 4, and 26 (21%) in stage 5ND CKD ($p < 0.001$)
- RAAS inhibitors prescribed in 239 (47%) patients, predominantly in CKD stages 3 and 4
- Diuretics prescribed to 229 (45%) patients, primarily in CKD stages 4 and 5ND
- Use of these medications correlated with higher incidences of hyperkalemia and hyponatremia

CONCLUSIONS

- Dyselectrolytemia is highly prevalent (88.4%) among non-dialysis CKD patients and becomes more pronounced with advancing stages
- Hyperkalemia and hypocalcemia are particularly common and are significantly associated with the severity of CKD
- The use of RAAS inhibitors and diuretics, contributes to the observed electrolyte imbalances
- With this study, we want to reiterate the importance of regular electrolyte monitoring and personalised management strategies to mitigate the risks associated with dyselectrolytemia in CKD patients