Abstract

Background: Chronic kidney disease-represents a significant global public health challenge and is a leading contributor to illness and death across populations. The multifactorial nature of CKD is influenced by many factors, among them electrolyte imbalances. The Kidney Disease Improving Global Outcomes guidelines (KDIGO) recommend achieving the required serum phosphorus, calcium, and intact parathyroid hormone (iPTH) levels through specific measures. Our study targets the assessment of the biochemical profile, and drugs associated with CKD in Benghazi Medical Centre-Libya.

Methodology: A prospective cohort study was conducted during the period September 2024 - March 2025 for 58 patients on dialysis in Benghazi Medical Centre-Libya.

Findings: A total of 58 patients were included in the final analysis. The mean age of the patients was 58.22 ± 14.30 years; male patients were significantly higher than females (38 vs. 20, p-value = 0.02). The etiology of CKD was mainly hypertension, 62 %, followed by diabetes mellitus (50 %). .43 (74.1%) patients have reported severely elevated Creatinine, the mean GFR (ml/min) in the total sample was 12.8 ml/min, and 55.2% have hyponatremia. All the patients have hyperphosphatemia, and 41(71%) reported a sort of Hypoalbuminemia. 19 (32.8%) of the patients have a moderate to severe urea elevation, and 39 (67%) of the patients reported hypocalcemia. The mean of phosphorous, Na+, K+, and Ca++ level were 6.80 mg/dL., 139.20 mg/dL, 4.65 mg/dL mean and 8.23 mg/dL. Respectively.

Males predominated in Stage 5 CKD 33 (56.9%), and Females were more likely to present with advanced CKD in Stage 4 8 (13.8%), p-value 0.027. Results indicated a significant positive correlation between intact parathyroid hormone (iPTH) and phosphorus (r = 0.4654, P< 0.0001). There was a significant negative correlation between the iPTH and Ca++ levels (r= -0.58, p= 0.020). Increased renal function parameters were the main cause of ICU admission (23%), followed by unidentified cause (13%), and lower respiratory tract infection (10%). Prophylaxis is the main indication for antibiotic use, followed by LRTI and sepsis.

The most frequently prescribed medications for chronic kidney disease (CKD) patients in Benghazi Medical Centre. Ceftriaxone (34.5%) and Meropenem (37.9%) were the top