Changes in Important Biochemical Parameters among Hemodialysis Patients Attending the National Nephrology Hospital Polonnaruwa: A Pilot Study

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Patients on chronic hemodialysis have high mortality rates, but there is little information available in Sri Lanka. According to studies conducted in many countries, hyperphosphatemia (high phosphorus levels), low TIBC (Total Iron Binding Capaity), high ferritin and low post-dialysis potassium levels were identified to be associated with mortality in hemodialysis patients. The main objective of the study was to identify any abnormal changes in biochemical parameters among hemodialysis patients in Polonnaruwa. A pilot study was conducted including 52 hemodialysis patients attending the National Nephrology Hospital, Polonnaruwa. Data were collected from medical records, an interviewer-administered questionnaire and several laboratory investigations conducted before and after dialysis. Dialysis adequacy of the patients were calculated using the Urea Reduction Ratio (URR). The majority of the population (77.5%) have a dialysis vintage < 2 years and most patients attend for dialysis sessions once in five days. The majority were; males (70.3%), >60 years of age (50.3%), with a mean±SD age of 58±12 years. Mean URR of the population was 71.27±10.59%, and 73.8% of patients had an efficient dialysis session. But, the mean level of hemoglobin was 10.9±1.5 g/dL, and 77.2% of the study population had low hemoglobin than the recommended level. Mean levels of serum phosphorus, TIBC, ferritin, and post-dialysis potassium were 5.8±1.9 mg/dL, 33.4±5.2 μmol/L, 469.4±319.6 ng/mL and 5.1±0.7 mmol/L respectively. Here, 59.6%, 96.2%, 61.5% and 43.4% indicated high phosphorus, low TIBC, high ferritin and low post-dialysis potassium levels respectively. Despite receiving adequate dialysis, a significant proportion of participants displayed abnormal levels of biochemical parameters like hyperphosphatemia, low TIBC, high ferritin and low post-dialysis potassium levels which were identified as crucial risk factors of mortality in most available literature. Further research are being conducted to identify the effect of the above mentioned factors and other possible factors on the quality of life and mortality of hemodialysis patients in the Sri Lankan context.

Keywords: Hemodialysis, Hyperphosphatemia, TIBC, Ferritin, Dialysis Adequacy, Urea Reduction Ratio