

**Title: Use of Klean enema to prepare phosphorous bath for dialysis in patients with low serum phosphorous.**

**Kunwer Naveed, Shaheen Bibi, Mehwish Qamar**

**Liaquat national Hospital Karachi, Pakistan**

**DOI: 10.53778/pjkd602199**

**Background:** Dialysis fluid (Dialysate) is a solution consisting of inorganic ions and glucose. Its constitution is almost physiologic. Dialysate is prepared by mixing two concentrates (either liquid or powder form). Two concentrates are labeled as acidic bath (Bath A) and basic bath (Bath B). Bath A contains sodium, chloride and glucose at physiologic concentration. While Bath B is bicarbonate solution contains bicarbonate slightly greater than physiologic concentration to treat metabolic acidosis.

Just as therapeutic drugs, Dialysis fluid constituents can be adjusted as per individual patient's needs. Potassium and calcium baths are available to alter concentration of these ions. Phosphorous is normally not present in dialysate. Though hyperphosphatemia is one of the major clinical problem in renal failure, low serum phosphorous (PO<sub>4</sub>) is frequently encountered clinical entity. In chronic dialysis patient low PO<sub>4</sub> is encountered as component of adynamic bone disease. Likewise, phosphorus dis balance is frequent electrolyte imbalance in critically ill patients with renal injury. Dialysis with low PO<sub>4</sub> is always a challenge for nephrologist and intensivist.

Case reports are available on treatment of symptomatic hypophosphatemia using convention hemodialysis with phosphorous enriched dialysate fluid.

We used Klean enema as PO<sub>4</sub> supplement to prepare PO<sub>4</sub> enriched dialysate and examined the results against both chronic and acute dialysis. We 1<sup>st</sup> checked PO<sub>4</sub> level in dialysate after adding different amounts of Klean enema and then used the bath.

**Methods**

This is a prospective interventional study. we included patients undergoing hemodialysis with serum phosphorous <2.0mg/dl, >1.0mg/dl.

**Setting and participation:** Study performed in Liaquat National Hospital Karachi. Data collected from Dialysis unit. Total 18 patients were included. All included patients were undergoing hemodialysis. All patients were having low serum phosphorous level pre hemodialysis (less than 2.0mg/dl). Patients having serum phosphorous less than 1.0mg/dl were excluded. Hemodialysis prescription was similar for all patients consisting polysulphone dialyser of surface area 1.8m<sup>2</sup>, Blood flow rate (BFR) of 300ml/mint, dialysate flow rate of 500ml/mint, bicarbonate solution of 36mmol/dl and added Klean enema to bath B. we measured phosphorous level in dialysate bath B as well as in serum post hemodialysis.

Dialysis machine: Fresenius hemodialysis machine ( Fresenius medical care 4008) was used.

**Data collection:** A specialized proforma was designed to collect data. Information regarding patient' s biography, admission diagnosis, indication for hemodialysis, and serum phosphorous level pre and post hemodialysis recorded. Blood sample analysis: we used COBAS 501 analyzer.

**Intervention:** We manually added Klean enema (30ml,60ml and 120ml) to bath B and prepared phosphorous containing dialysate. We checked phosphorous in dialysate fluid (table 1)

**Results:** 18 patients included in this study. 77 % was male and 23% female.61 % had diabetes, 66.7 % HTN, 44.4 % were ESRD,27.8% had CKD and 27.8% had AKI. Mean pre hemodialysis serum phosphorous was 1.77 mg/dl. Mean post hemodialysis serum phosphorous was 3.0 mg/dl.

**Conclusion:** Klean enema can be used to prepare phosphorous rich dialysate bath B. However, Findings are needed to check on large number of patient to evaluate exact quantification and drug safety.

Table:1

| Klean enema (ml) | Dialysate bath B<br>phosphorous level<br>(mg/dl) |
|------------------|--------------------------------------------------|
| 30               | 1.3                                              |
| 60               | 2.6                                              |
| 120              | 5.2                                              |

Pre and post hemodialysis serum phosphorous (PO<sub>4</sub>) level

