

Hyperphosphatemia

Normal levels of phosphate <4.5mg/dl, it largely depends on levels of PTH & serum calcium
If hyperphosphatemia indicated by urine phosphate levels >1500mg/dl it is mainly bec.:

A) Increased intake :

- Phosphosol de bowel preparation
- Vitamin D intoxication
- Granulomatous disease
- Calcitriol overdose
- Lymphomas activation

Causes

If urine phosphate levels <1500mg/dl
-Acute/chronic renal insufficiency
-2ry Hyperparathyroidism
-Hypoparathyroidism
-Acromegaly

B) Transcellular shifts :

- Rhabdomyolysis, hemolysis
- Tumor lysis syndrome
- Metabolic Acidosis
- Relative insulin deficiency

Management

Diet: restricting dietary phosphate intake

↓ the daily phosphate intake in diet with the recommended daily protein intake of 1.0–1.2 g/kg/day

Reducing intestinal absorption (phosphate binders)

- Ca-based phosphate binders (**CaCO₃** → not exceed 2 g/day)
OR
Ca acetate → 8.45mEq of elemental Ca²⁺, dose → 2 tabs /8hrs
- Non-absorbable polymers (**Sevelamer** → 2.4-14.4 g/day once-daily)
(**Sucroferric oxyhydroxide** → 1-3 g/day)
- Heavy metal salts (**Lanthanum CO₃** → Oral: Initial: 1,500 mg daily divided and taken with or immediately after meals → increases of 750 mg daily / 2 to 3 weeks to reduce the serum PO₄ level <6 mg/dL (1.92 mmol/L); usual dosage range: 1,500 - 3,000 mg daily; doses of up to 4,500 mg have been evaluated
Al(OH)₃ → 1920 -2560 mg orally 3-4 times a day).

Enhancing elimination:

- A rapid reduction in S. PO₄ seen at the beginning of dialysis (first 60–90 min).
- Saline diuresis for XSS phosphorus excretion in acute overload state
- Acetazolamide to enhance elimination (15mg/kg /4hrs)

Surgical care

- Removal of large calcium phosphate deposits occurring in patients with tumoral calcinosis or long-standing renal failure
- Parathyroidectomy in patients with renal failure who have tertiary (autonomous) hyperparathyroidism complicated by hypercalcemia, hyperphosphatemia, and severe bone disease.

Ca phosphate binders aren't used if hypercalcemia is indicated :

- Ionized Ca²⁺ >5.6mg/dl(1.4mmole/L)
- Or corrected Ca²⁺ > 10.5mg/dl(2.625mmole/L)