

hyperphosphataemia  
[created by Paul Young 17/12/07]

treatment

- (i) limit phosphate intake
  - (ii) enhance urinary phosphate excretion
    - in the absence of end stage renal disease, phosphate excretion can be optimised with saline infusion and diuretics
    - diuretics that work on the proximal tubule such as acetazolamide are particularly effective for enhancing phosphate excretion
    - any patient with life threatening hyperphosphataemia should receive dialysis
  - (iii) oral phosphate binders
    - calcium and aluminium salts are widely used; however calcium salts may produce metastatic calcification and aluminium salts are toxic.
    - in dialysis patients, chronic management with calcium free phosphate binders such as sevelamer hydrochloride may reduce long-term mortality by preventing long-term cardiovascular complications associated with a high calcium phosphorus product
- NB: in the acute management of patients with hyperphosphataemia accompanied by hypocalcaemia, the likelihood and clinical significance of metastatic calcification with acute calcium administration is unclear

causes

- (i) renal failure
  - most common cause
  - causes hyperphosphataemia because the renal excretion by the kidneys is impaired
  - serum phosphate is usually normal until the creatinine clearance is less than 30ml/min
- (ii) increased renal resorption
  - hypoparathyroidism
  - thyrotoxicosis
- (iii) cellular injury with release of phosphate
  - tumour lysis syndrome
  - rhabdomyolysis
  - haemolysis
- (iv) medication related
  - abuse of phosphate containing laxatives
  - excessive phosphate administration
  - bisphosphonate therapy

manifestations

- most manifestations are due to associated hypocalcaemia which is produced by
  - (i) precipitation with calcium (leading to nephrolithiasis)
  - (ii) interference with parathyroid hormone-mediated resorption of bone
  - (iii) decreased vitamin D levels
- manifestations of hypocalcaemia include muscle cramping, tetany, hyperreflexia and seizures as well as cardiovascular manifestations