



# Nephrocalcinosis

---

## Characteristics

- Renal lithiasis in which calcium deposits form in the renal parenchyma and result in reduced kidney function and hematuria.
- Seen with renal ultrasound, or occasionally on plain radiographs of the kidneys.
- Results from an imbalance of stone-promoting and stone-inhibiting factors.
- Incidence in very low-birthweight infants (BW<1500g) ranges from 16-64%.
- Risk factors in at risk infants:
  - Medications with hypercalciuric effects (furosemide, corticosteroids, aminoglycosides).
  - Metabolic acidosis.
  - Hypocitraturia.
  - Hypercalciuria.
  - High urinary oxalate:creatinine ratios.
  - High urate:creatinine ratios.

## Effects

- Glomerular function: Mean GFR and microalbuminuria in preterm infants is slightly worse than in healthy infants.
- Proximal tubule function: Phosphate reabsorption is significantly lower in patients with nephrocalcinosis, but plasma phosphate levels are within reference limits; no firm evidence for proximal tubular dysfunction.
- Distal tubule function: Urine anion gap of infants with nephrocalcinosis is high, and serum bicarbonate levels are low, indicating distal tubular dysfunction.
- Blood pressure: Not higher in infants with nephrocalcinosis, but overall higher in preterm infants than in healthy term infants.
- Hypercalciuria: Significantly more hypercalciuria in infants with nephrocalcinosis.



## Monitoring/Treatment

- If associated with a medication that causes hypercalciuria, consider trying to stop the medication and monitor for resolution.
- Resolves in 75% by 7 years of age.
- Does not appear to have any long-lasting significant health effects.
- Should have:
  - Blood pressure checked at every visit.
  - Yearly renal ultrasounds until resolution occurs.
  - Electrolytes and BUN/Cr checked every 2 years.
- Patients do not need to be followed by renal team unless other issues arise.
- UTI and urolithiasis do not occur any more frequently than in general population.
- Do NOT stop the use of high-calcium containing infant formulas.