## Ascorbic acid/biotin/cobalamin/colecalciferol/cyanocobalamin/dexpanthenol/flavin mononucleotide/folic acid/niacin/nicotinamide/pantothenic acid/pyridoxine/retinol/riboflavin/thiamine/tocopherol/furosemide

OS

### Multiple toxicities: 15 case reports

In a study, 11 boys and 4 girls, aged between 24.3–35 weeks were described, who developed hypercalcaemia (3 neonates), nephrocalcinosis (6 neonates), hypercalciuria with nephrocalcinosis (3 neonates) or hypercalcaemia with nephrocalcinosis (3 neonates) following ascorbic acid/biotin/cobalamin/colecalciferol/cyanocobalamin/dexpanthenol/flavin mononucleotide/folic acid/niacin/nicotinamide/pantothenic acid/pyridoxine/retinol/riboflavin/thiamine/tocopherol [Cernevit] overdose. Three of the 15 patients also showed renal lithiasis due to overdose. Additionally, eight of the 15 neonates, were receiving furosemide.

The premature neonates were initiated on vitamin-D supplementation with ascorbic acid/biotin/cobalamin/colecalciferol/cyanocobalamin/dexpanthenol/flavin mononucleotide/folic acid/niacin/nicotinamide/pantothenic acid/pyridoxine/retinol/riboflavin/thiamine/tocopherol for vitamin D deficiency and furosemide (n=8) [*routes and dosages not clearly stated; not all indications stated*], and developed hypercalcaemia, hypercalciuria, nephrocalcinosis and/or renal lithiasis. The neonate's ascorbic acid/biotin/cobalamin/colecalciferol/cyanocobalamin/dexpanthenol/flavin mononucleotide/folic acid/niacin/nicotinamide/pantothenic acid/pyridoxine/retinol/riboflavin/thiamine/tocopherol was discontinued within 0–234 days following the onset of overdose symptoms. The neonate's showed 25[OH]D and 1,25[OH]2D levels between 119–350 nmol/L and 718–245 pmol/L. Ascorbic acid/biotin/cobalamin/colecalciferol/cyanocobalamin/dexpanthenol/flavin mononucleotide/folic acid/niacin/nicotinamide/pantothenic acid/pyridoxine/retinol/riboflavin/thiamine/tocopherol was resumed after the normalisation of 25[OH]D or 1,25[OH]2D levels in 10 patients. Regression of nephrocalcinosis was observed in 10 patients, whereas two patients with nephrocalcinosis did not show regression [*not all outcomes stated*]. Furosemide was also thought to contribute to the development of nephrocalcinosis.

**Author comment:** *The pathophysiology of nephrocalcinosis in premature infants is multifactorial: tubular immaturity, prolonged treatment loop diuretics or corticosteroids, parenteral nutrition, etc. [T]he diagnosis of vitamin D overdose is still difficult, but that it should be considered in the context of the epidemiological assessment of hypercalcaemia, hypercalciuria or nephrocalcinosis in the neonatal period in infants born prematurely.*

Vierge M, et al. Neonatal intoxication to vitamin D in premature babies: A series of 16 cases. Archives de Pediatrie 24: 817-824, No. 9, Sep 2017. Available from: URL: https://www.ncbi.nlm.nih.gov/pubmed/28818584 [French; summarised from a translation] - France

803289235