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Calcium imbalance in Sarcoidosis and Renal Failure

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Calcium metabolism, Sarcoidosis, Renal Failure

Case details:

A 59 year old gentleman with a background history of chronic kidney disease stage (CKD) 4, type 2 diabetes mellitus, hypertension, congestive cardiac failure and bilateral lower limb below knee amputations, presented with hypercalcaemia of 3.30 mmol/L (reference range 2.20 - 2.60) and suppressed PTH at 12 ng/l (reference range 15-65), from a previously raised PTH level of 162 due to CKD.

Investigations

showed raised ACE levels of 106 U/l (reference range 10-52), enlarged mediastinal and hilar lymph nodes on CT. A presumptive diagnosis of sarcoidosis was made in view of patient's reluctance to undergo invasive biopsy. He was treated with oral prednisolone 60 mg od.

Calcium normalised to 2.56 mmol/L within one week and continued to drop further leading to symptomatic hypocalcaemia at 1.87 mmol/L in 3 weeks. The PTH rose to 268 ng/l. This was treated with alfacalcidol and the calcium normalised. He was weaned off prednisolone and patient stopped alfacalcidol in few months and the calcium remains normal with a raised PTH.

Discussion:

We hypothesise that, on administering the prednisolone in this patient, there was inhibition of extra renal 1,25-OH-Vitamin D synthesis in the sarcoid granulomas.

The CKD induced Vitamin D deficiency in the background was unmasked by amputating the predominantly extra-renal source of Vitamin D in this patient by treatment with prednisolone.

This explains the presentation of hypercalcaemia with a suppressed PTH level initially, which then reversed. On treatment there was a high PTH secondary to low 1,25 OH

Vitamin D. It interesting to note that there is one case report of sarcoidosis ameliorating the symptoms of hypoparathyroidism.

Conclusion:

We discuss the complex interactions between renal and extra renal 1-alpha-hydroxylases and the need for vigilance if multiple mechanisms of calcium homeostasis are affected in a patient.

Conflict of Interests/Comments: Nothing to declare.