

SARCOIDOSIS “UNMASKED”

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We hereby report a case of severe hypercalcemia after ergocalciferol (vitamin D₂) supplementation in a patient with CKD and underlying undiagnosed sarcoidosis. Mechanisms of hypercalcemia in this case are discussed.

A 66 yo male with stage 4 CKD presented with lethargy and constipation. A few weeks earlier he was started on ergocalciferol 50,000 IU/month. Past history included renal cell carcinoma status post nephrectomy, hypertension and granulomatous uveitis. Physical examination showed a red inflamed eye. Laboratory data included-corrected serum calcium level 17 mg/dl, serum BUN 30 mg/dl, serum creatinine 3.6 mg/dl, serum iPTH level 2.5 pg/ml, serum 25-vitamin D 19 ng/ml (normal: 20-57 ng/mL), and serum 1, 25 vitamin D was 124 pg/dl (normal: 15-75 pg/ml). Hypercalcemia was resistant to treatment with intravenous hydration and calcitonin and this along with previous history of uveitis prompted further evaluation. Angiotensin converting enzyme level was elevated at 119 U/L. Chest CT scan showed multiple pulmonary nodules and transbronchial biopsy was consistent with sarcoidosis. Hypercalcemia resolved dramatically after initiation of prednisone therapy.

The 1 α -hydroxylase enzyme converting 25-vitamin D to 1, 25-vitamin D in the renal proximal tubules is tightly regulated. Hypercalcemia in sarcoidosis is due to extra-renal conversion of 25-vitamin D to 1, 25-vitamin D by macrophages, which express 1 α -hydroxylase gene and are unaffected by factors regulating the renal enzyme. The macrophage enzyme is activated by γ -interferon suggesting that vitamin D may function in an autocrine-paracrine loop as a defense against the local inflammatory process in sarcoidosis. In our case, we suspect that supplemental ergocalciferol was metabolized to 25-vitamin D which was rapidly converted to large amounts of 1, 25-vitamin D by sarcoid macrophages leading to severe hypercalcemia. By inhibiting alveolar macrophages, prednisone induced dramatic and sustained reduction in 1, 25-vitamin D levels and serum calcium.