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Case Report

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Hyper-Vitaminosis D

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Introduction

Vitamin D is a group of fat-soluble molecules responsible for increasing intestinal absorption of calcium, magnesium, and phosphate, and multiple other biological effects [1]. High levels of 25(OH) vitamin D can therefore cause refractory hypercalcemia. Suboptimal levels of serum Vitamin D are a global healthcare issue. Recently, Vitamin D has increasingly been recognised to have healthcare benefits beyond Calcium metabolism and bone health. As a result, Vitamin D status assessment and over-the-counter consumption has exponentially increased. However indiscriminate consumption can lead to hypervitaminosis D and its associated complication. This report reviews a case of a patient with hypercalcaemia and Acute Kidney injury as result of Vitamin D intoxication.

Case Report

50 year old female, presented to acute medical unit due to lethargy, nausea, vomiting, headache and high blood pressure of 220/110. Her medical history includes recently diagnosed hypertension (recently started on amlodipine 5mg once a day), Left knee ACL injury 4 months previously, uterine Leiomyoma under surveillance, complex ovarian cyst and gallstones. Laboratory findings showed as follows: Adjusted Calcium 3.92 mmol/L (2.20 - 2.60), Phosphate 0.57 mmol/L (0.80 - 1.50), Mg 1.10 mmol/L(0.7 - 1.00), Sodium 137 mmol/L (133 - 146), Urea 9.0 mmol/L (2.5-7.8), creatinine 278 umol/L (45-84), eGFR/1.73m^2 (CKD-EPI) 16, WC 11,72 109/L (4.0 -11.0), NT 8.80 109/L (1.5 - 8.0), PTH 1.2 (1.6 - 6.9 pmol/L). Physical examination was essentially normal. CT Head Chest abdomen and pelvis performed only showed unchanged bulky fibroid uterus. US of renal tract did not show any structural renal abnormality. The patient was treated with IV saline 0.9% hydration and ibandronic acid to lower calcium levels and amlodipine was increased to 10mg once a day to control hypertension. Vitamin D levels results come back at a later date at 1800 mcg/L. The patient admits to have been taking over the counter vitamin D equivalent to 8000iu - 16000iu a day for the past 4 months since knee injury, confirms start of unspecific symptoms such as Lethargy, tiredness 2 months after starting daily vitamin d tablets intake.

Discussion

Vitamin D toxicity can occur due to continuous intake of its synthetic form when levels reach greater than 150 mpg/l [2]. Treatment is based on restricted calcium intake as well as iv hydration and use of bisphosphonates, calcitonin, loop diuretics, steroids [3].

This case highlights some interesting findings. The initial total Vitamin D level is one of the highest ever reported in the literature. The presentation of hypervitaminosis D with malignant hypertension, headache and severe acute kidney is also unusual. The initial supressed PTH points towards malignancy as differential diagnosis, hence the numerous investigations performed as above described to screen for this. Anyone taking over the counter Vitamin D should be clinically monitored. Vitamin D toxicity although rare is becoming more prevalent due to increase in Vitamin D supplementation by clinicians [4].

Conclusion

This is a differential diagnosis that should be early considered in cases of hypercalcaemia particularly with low or normal PTH, in order to avoid unnecessary investigations and prolonged admissions and prompt early effective treatment to avoid permanent kidney injury. This case also reiterates the importance of taking a thorough medication history. Anyone taking over the counter Vitamin D should be clinically monitored.

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