Impact of intercurrent illness on calcium homeostasis and hypoparathyroidism management

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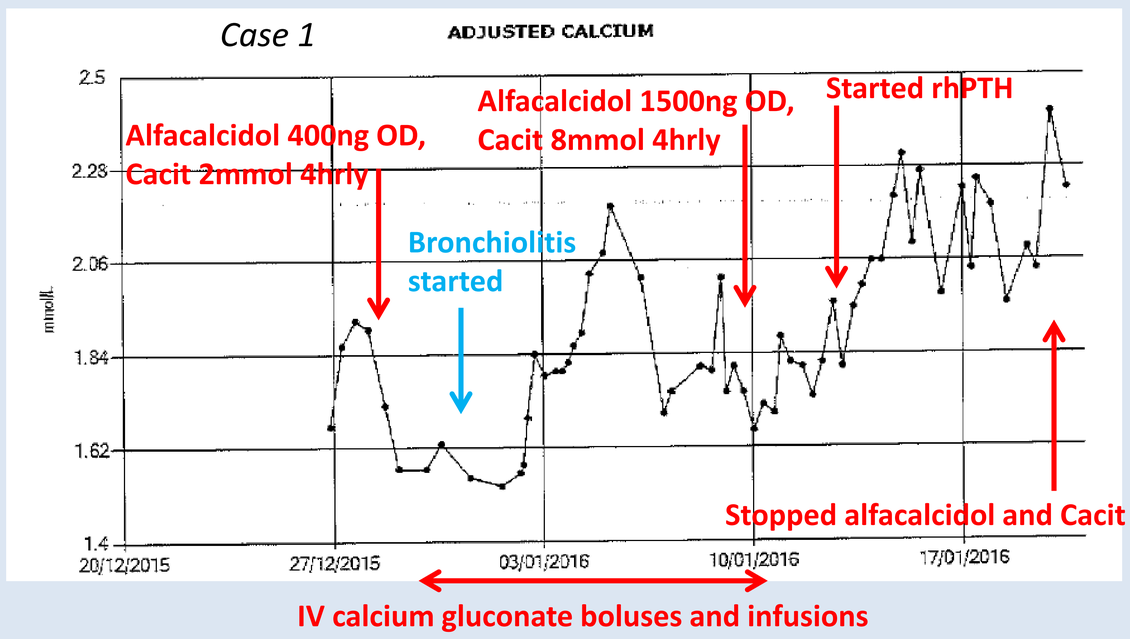
Introduction

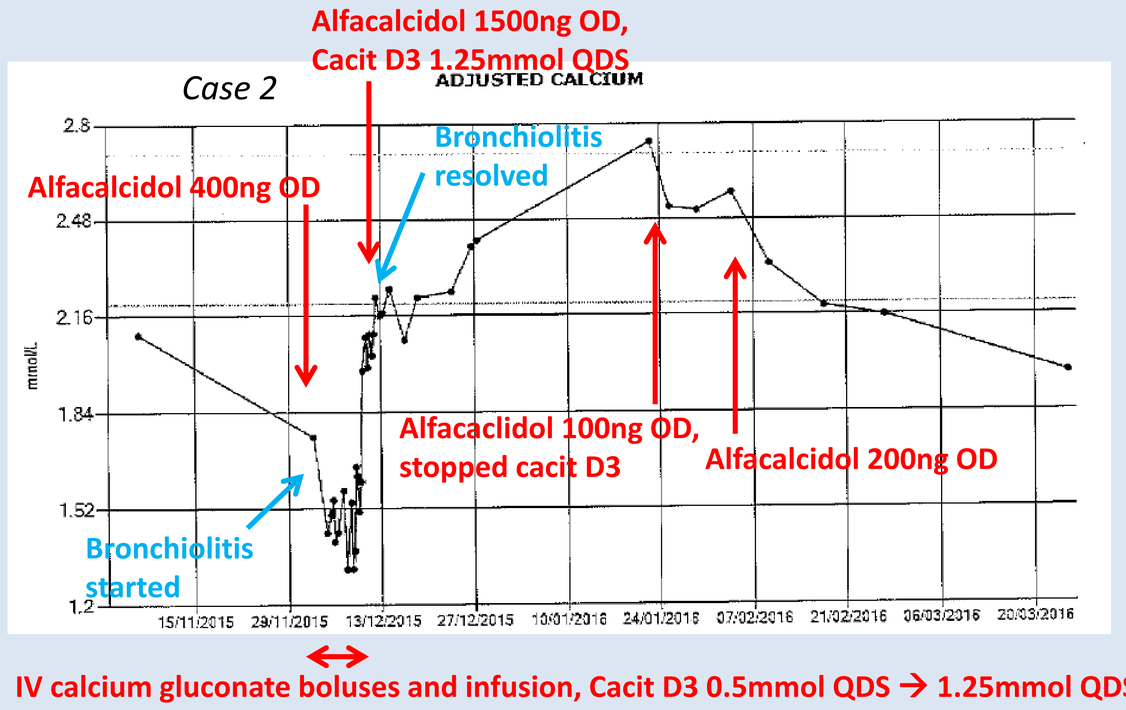
Hypoparathyroidism is typically managed with calcitriol/alfacalcidol. Close monitoring of serum calcium is required as under-treatment causes symptomatic hypocalcaemia while over-treatment will cause nephrocalcinosis. We report three cases who demonstrated resistance to treatment during an intercurrent illness, necessitating increase in medication doses and monitoring.

Case series

Case 1: Two-month-old boy with newly diagnosed hypoparathyroidism due to *GCMB2* mutation normalised his calcium on standard treatment with alfacalcidol and calcium supplements. He however developed bronchiolitis during admission, resulting in precipitous drop in corrected calcium (1.53mmol/L) and seizures requiring IV calcium infusion and significant increase in medication to normalise serum calcium (alfacalcidol 400ng/day → 1500ng/day and calcium supplements 12mmol/day → 48mmol/day). He eventually needed recombinant PTH [1-34] to achieve calcium homeostasis.

Case 2: A male infant diagnosed with hypoparathyroidism at birth responded to standard treatment. At 2 months he presented with bronchiolitis and recurrent hypocalcaemic seizures requiring increase in dose of alfacalcidol (400ng/day → 1500ng/day) and calcium supplementation. However, following resolution of illness, he required rapid reduction in dosage due to hypercalcaemia.





Case 3: A six-month-old boy with Sanjad-Sakati syndrome on standard treatment for hypoparathyroidism presented with symptomatic hypocalcaemia following viral gastritis. He required increases in dosage of alfacalcidol upto 3000ng/day to normalise serum calcium. He was however lost to follow-up and presented again at 2 years of age with symptomatic hypercalcaemia (cCa>3mmol/l) and severe nephrocalcinosis. To normalise his serum calcium and prevent further progression of nephrocalcinosis, he was commenced on recombinant PTH [1-34].

Conclusion

Intercurrent illness in infants with hypoparathyroidism can lead to marked resistance to standard treatment and symptomatic hypocalcaemia. The underlying pathophysiology remains unknown, but would seem to involve more than just intolerance to oral medication or feeds[1]. During such periods, close monitoring of calcium levels is required, with quick escalation in medication doses, as well as reduction to baseline on recovery to prevent over-treatment.

References
1. Bhadada et al. Indian J Endocrinol Metab. 2012; 16(3):489-491. Do we need sick-day guidelines for hypoparathyroidism

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