

CASE STUDY: SEVERE HYPOPHOSPHATEMIA FOLLOWING DENOSUMAB AND INTRAVENOUS IRON INFUSION

Authors

Roshni Gammi - Pharmacist, **Manki Li - Pharmacist**, Julie Adams Leader - Governance, Dan Corrigan - Pharmacy Lead and Stacy McGreal - WA Nurse Lead



BACKGROUND

Reports have highlighted a potential interaction between denosumab and intravenous iron infusion, leading to severe hypophosphatemia, hypocalcemia, and secondary hyperparathyroidism. Research suggests maintaining a three-month interval between these treatments to minimize electrolyte imbalances ⁽¹⁾.

Following review of these results by the c@h clinical pharmacist, contact was made with MT's oncologist, who admitted her for intravenous electrolyte replacement. This resulted in partial recovery by December 23, 2024, with a phosphate (0.63 mmol/L) and corrected calcium levels (1.93 mmol/L).

CASE PRESENTATION

MT, a chemo@home (c@h) patient receiving trastuzumab, pertuzumab, and denosumab, under an oncologist, every three weeks, was referred for an iron infusion by her GP on November 19, 2024.

To mitigate the potential interaction, denosumab was withheld on November 21, 2024, and the iron infusion was rescheduled to November 26 where she was admitted to hospital with close electrolyte monitoring.

Pre-iron infusion blood results showed normal phosphate (1.32 mmol/L; NR: 0.75-1.5) and corrected calcium levels (2.5 mmol/L; NR: 2.1-2.6).

Post-iron infusion results on November 27 revealed lower phosphate (1.13 mmol/L) but stable corrected calcium (2.54 mmol/L).

MT proceeded with her routine treatment, including denosumab, on December 12, 2024, with planned post-infusion monitoring.

On December 17, 2024, blood tests revealed critical phosphate depletion (<0.32 mmol/L), reduced corrected calcium (2.06 mmol/L), and elevated PTH (38.7pmol/L; NR: 1.90-8.5).

OUTCOME

MT's denosumab was withheld multiple times, and she is scheduled for resumption on March 6, 2025, following continuous monitoring.



CONCLUSION

This case highlights the importance of scheduling and proactive electrolyte checks to avoid severe complications in patients receiving both denosumab and IV iron therapy.

REFERENCES

1. Lee FY. Secondary hyperparathyroidism with hypocalcaemia and hypophosphataemia due to concurrent use of denosumab and iron infusion. Pharmacy GRIT. 2024.



Want help when prescribing iron to patients on anti-resorptive therapy, including denosumab? Download our Guidelines for Referrers: Denosumab and Intravenous Iron Infusions information sheet for practical advice and safe prescribing tips.