November 2023

Refills

Your dose of drug information in between sessions

When should serum calcium be checked in people initiating or taking denosumab (Prolia®) for fracture risk reduction?

Conclusion: Health Canada recommends that serum calcium be checked:

- **before initiating treatment with denosumab**
- **before each subsequent dose**
- **anytime during treatment if symptoms of hypocalcemia are suspected**
- **within 14 days after each dose if risk factors for hypocalcemia**

The BC Provincial Academic Detailing (PAD) service is now delivering the 2023 topic Medications for osteoporosis: an update.[1] This topic looks at the evidence for bisphosphonates, denosumab, raloxifene, teriparatide and romosozumab.

A common question we receive is: When should calcium be checked in people initiating or taking denosumab (Prolia®)?

Denosumab, a subcutaneous injection given once every 6 months, requires serum calcium monitoring and is contraindicated in people with hypocalcemia. This is a relevant clinical consideration when weighing the choice to initiate denosumab because a subsequent decision to discontinue it is complicated by an increased risk of rebound vertebral fractures.[1] Osteoporosis Canada explains: "It is important to communicate the need for commitment to long-term therapy and the need to transition to alternative antiresorptive therapy if discontinuing denosumab".[2]

Denosumab (Prolia®): monitoring for hypocalcemia[3-10]	
All patients check serum calcium	▪ Before initiating treatment (investigate & correct hypocalcemia before initiating) ▪ Before each subsequent dose ▪ Anytime during treatment, if symptoms of hypocalcemia are present

Patients with risk factors for hypocalcemia
additional monitoring recommendations
	▪ Check serum calcium within 14 days after each dose
	▪ Examples of risk factors for hypocalcemia:
	  ▪ CrCl <30 mL/min, dialysis*
	  ▪ History of hypocalcemia
	  ▪ Hypoparathyroidism, thyroid or parathyroid surgery
	  ▪ Malabsorption syndromes, excision of small intestine

Patient education prevention & monitoring of hypocalcemia	▪ Ensure adequate calcium and vitamin D intake during denosumab treatment to reduce the risk of hypocalcemia. In denosumab clinical trials, patients were instructed to take at least 1000 mg of calcium and 400 IU of vitamin D daily. ▪ Report any symptoms of hypocalcemia during treatment such as: muscle spasms, muscle twitching or cramps or numbness or tingling in fingers, toes or around mouth.
*Consultation with nephrology for patients with chronic kidney disease (CKD) may be warranted prior to initiating denosumab to assess for any relevant mineral and bone disorders (CKD-MBD). Kidney function is an important risk factor for denosumab-associated hypocalcemia therefore treatment and monitoring may need to be individualized. The risk of denosumab-associated hypocalcemia increases as eGFR declines: eGFR 30–60 mL/min: < 1% of people; eGFR 15–30 mL/min: 4% of people; eGFR <15 mL/min, dialysis: 24–42% of people.	

[1]BC Provincial Academic Detailing Service 2023 Medications for osteoporosis: an update; [2]Osteoporosis Canada CMAJ 2023;195:E1333-E1348 (PMID:37816527); [3]Health Canada Drug Product Database (Prolia); [4]US FDA Approved Drugs (Prolia); [5]COWAN J Bone Mineral Res 2023;38:650-58 (PMID:36970786); [6]THONGRAYOON Osteoporos Int 2018;29:1737-45 (PMID:29713798); [7]BLOCK J Bone Miner Res 2012;27:1471-79 (PMID:22461041); [8]TSVETOV Osteoporos Int 2020;31:655-65 (PMID:31838550); [9]JALLEH Case Rep Nephrol 2018;7384763 (PMID:30519493); [10]US Food and Drug Administration Prolia (denosumab) Medication Guide

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