Community dentists and osteonecrosis of the jaw

By understanding the risk factors for osteonecrosis of the jaw (ONJ) and the steps that can be taken to avoid it, community dentists can play a key role in the prevention of this complication in patients receiving antiresorptive treatment. It is also essential that community dentists are aware of the signs and symptoms so that, when ONJ occurs, diagnoses can be made promptly and patients can be treated effectively and conservatively.
What is ONJ?

ONJ is a bone complication that can be associated with use of the bone-protecting (antiresorptive) agents bisphosphonates or denosumab. These agents are indicated for the prevention of skeletal-related events in patients with advanced malignancies involving bone, and treatment of giant cell tumour of the bone.1-4 Although ONJ can lead to considerable morbidity, there are many steps that can be taken to prevent the condition, in addition to effective management strategies.4-8 Accurate diagnosis is crucial because patients receiving bone-protecting agents may present with other common clinical conditions, which should not be mistaken for ONJ.

Identifying ONJ

ONJ may present with the following signs and symptoms:9,10
- exposed bone
- paraesthesia in the region of the jaw/gum
- loosening of teeth
- fistulae
- swelling
- exudation
- pain
- soft tissue infection
- halitosis.

ONJ is characterised by three main features11

| Stage 0 | No clinical evidence of necrotic bone, but non-specific clinical findings |
| Stage 1 | Exposed and necrotic bone in asymptomatic patients without evidence of infection |
| Stage 2 | Exposed and necrotic bone in patients with infection, radiographic findings localised to alveolar bone region |
| Stage 3 | Exposed and necrotic bone in patients with infection and additional complications (exposed and necrotic bone extending beyond the alveolar ridge, pathologic fracture, extraoral fistulae, oroantral/oronasal fistulae or osteolysis) |

ONJ stages6

Who is at risk of ONJ?

Patients receiving bone-protecting therapy for the prevention of skeletal-related events in advanced malignancies involving bone are at increased risk. Bisphosphonates or denosumab are also used to treat osteoporosis, but at much lower doses; hence, the risk of ONJ in patients receiving treatment for osteoporosis is much lower.4,6 Various other factors are associated with an increased risk of ONJ in patients receiving bone-protecting therapy.1,2,4,9,12,13 The main risk factors include:
- invasive dental treatments (e.g. tooth extraction, insertion of dental implants or prostheses, or surgery in the region of the mouth)
- poor oral hygiene
- cancer therapy (e.g. radiotherapy in the region of the head and neck, chemotherapy, corticosteroid therapy, or previous treatment with bisphosphonates or inhibitors of angiogenesis)
- concomitant diseases (e.g. pre-existing dental diseases, anaemia, infections, diabetes mellitus, immunosuppression or renal failure)
- smoking
- old age (over 60 years old).

How can ONJ be prevented?

Examining patients thoroughly before initiating bone-protecting therapy means that dentists can ensure that patients' oral health is optimal and that any necessary dental procedures are completed before starting bone-protecting therapy.

Before initiating bone-protecting therapy, dentists and patients should consider the following preventive measures:2,6,14
- removing non-restorable teeth and completing dental surgery (bone-protecting therapy should not be initiated until the extraction site wound has healed)
- treating infections in the mouth region
- checking prostheses to ensure good positioning and treating any pressure points that have arisen.

All restorative dental procedures should be completed before the start of treatment

To reduce the risk of ONJ further during treatment with bone-protecting therapy, all patients should be encouraged to maintain good oral hygiene, to have dental check-ups (every 6 months) and to tell their dentist or doctor about any problems with their mouth or teeth (e.g. loose teeth, pain or swelling, non-healing of sores or discharge).1,2,14

Accurate diagnosis is crucial because patients receiving bone-protecting agents may present with other common clinical conditions, which should not be mistaken for ONJ.
Managing ONJ

Identifying ONJ at an early stage means that the majority of patients can be managed conservatively using the following treatments:4,6

- maintenance of optimal oral hygiene
- elimination of active dental and periodontal disease
- topical antibacterial mouth rinses
- systemic antibiotic therapy.

This approach will resolve the majority of early-stage cases or provide long-term symptomatic relief.4,15,16 For non-responsive ONJ lesions, surgery (debridement and/or resection) can be effective.4,17,18

There is a lack of data regarding discontinuation of bone-protecting therapy (a ‘drug holiday’).6 If ONJ develops, the patient’s oncologist may consider discontinuing the therapy until soft tissue closure is achieved; in such cases, the risk of skeletal-related events if therapy is stopped should also be assessed.6,19 The management plan should be set up in close collaboration with the patient’s physician.1,2

Key questions

✓ Has your patient had any recent changes in medication?
✓ Is your patient currently undergoing anti-cancer treatment?
✓ Does your patient have any additional risk factors for ONJ?

Take-home messages

- ONJ can occur as a complication of bone-protecting therapy used for patients with advanced malignancies involving bone
- The risk of ONJ can be reduced by implementing preventive dental measures before starting treatment, maintaining good oral hygiene, ensuring periodic follow-up by dental professionals and avoiding elective invasive procedures during treatment
- It is important that dentists discuss treatment options with the prescribing physician before conducting any essential invasive dental procedures in a patient receiving bone-protecting therapy
- Early diagnosis enables most cases of ONJ to be managed effectively and conservatively by an experienced and trained dental specialist
References


This document was reviewed by an ADEE panel in June 2019.

For further information, please visit www.adee.org/adee-onj