Osteonecrosis of the jaw (ONJ)

Symptoms and complications Infosheet

This Infosheet explains what osteonecrosis of the jaw (ONJ) is and its link to long term bisphosphonate use. It also explains what the symptoms of ONJ are and some tips for management.

What is ONJ?

ONJ is a rare condition in which one or more parts of the jawbone become exposed on the inside of the mouth.

The word 'osteonecrosis' comes from 'osteo', which means bone, and 'necrosis', which means cell death. Exposed bone has no blood supply and can therefore die (become necrotic).

In the jaw, the bone is only covered by a thin layer of tissue, so it can quite easily become exposed. This means the jaw bones are particularly prone to osteonecrosis, especially at the site of major dental procedures, such as having teeth removed.

Exposed, necrotic bone that does not heal within eight weeks after it has been identified by a dentist or doctor is known as ONJ.

What are the signs and symptoms of ONJ?

Signs and symptoms of ONJ include:

- A tooth socket not healing after the tooth has been extracted
- An area of exposed bone in the mouth
- Pain or swelling of gums
- A heavy or numb feeling in the jaw
- Teeth becoming loose
- Discharge of pus (thick fluid caused by an infection)

These signs and symptoms do not necessarily mean you have ONJ. More common conditions may cause the same symptoms. However, you should contact your healthcare team or dentist for advice if you experience any of the signs and symptoms, particularly if you are currently on bisphosphonate treatment.

What is the link between ONJ and myeloma?

ONJ can occur as an infrequent side effect of a group of treatments called bisphosphonates. Bisphosphonates are given to myeloma patients to treat myeloma bone disease. The risk of ONJ seems to be higher in patients given bisphosphonates into the vein (intravenously) and after longer-term treatment with them.

What is the risk that myeloma patients will develop ONJ?

It is not certain how many myeloma patients treated with intravenous (IV) bisphosphonates will experience ONJ. Myeloma patients are advised to take precautions, such as avoiding invasive dentistry (for example tooth extractions) during treatment. These precautions are likely to greatly reduce the risk of ONJ.

Risk factors for ONJ

The risk of ONJ occurring in myeloma seems to be closely associated with:

- Type of bisphosphonate – ONJ is more likely to occur with the use of IV bisphosphonates. Zoledronic acid (Zometa®) appears to carry the highest risk
- Duration of treatment – ONJ appears to be more likely to occur in patients who have been on bisphosphonate treatment for a long time
- Dental treatment – many ONJ cases happen after invasive dental treatments or oral surgery. This includes treatments such as

tooth removal, insertion of tooth implants, and surgery in the areas around the teeth (periodontal surgery), but not routine dental work such as fillings

ONJ is also more common in people with a history of gum disease or mouth infections, and in those who wear dentures.

Other factors that may increase the risk of ONJ include a history of smoking and poor oral hygiene.

There is also evidence of possible genetic risk factors but further research is needed before a link can be made for certain.

Drug	Other names	How is it given?
Zoledronic acid	Zometa®	Intravenous infusion over 15–30 minutes, repeated every 3–4 weeks
Pamidronate disodium	Aredia®	Intravenous infusion over 90–120 minutes, repeated every 4 weeks
Sodium clodronate	Loron®, Clasteon® and Bonefos®	Oral tablets, taken once or twice per day

Table 1. Bisphosphonates used to treat myeloma bone disease

About bisphosphonates

Bisphosphonates are treatments used in myeloma to strengthen and protect patients' bones.

Studies have shown that regular treatment with bisphosphonates can help to reduce fractures, relieve pain, and improve quality of life. Table 1 shows what bisphosphonates can be used to treat myeloma bone disease.

Current national guidelines on the diagnosis, treatment, and management of myeloma recommend the use of bisphosphonates in all patients with active myeloma. This includes those without myeloma bone disease.

The Myeloma IX trial compared the effects of sodium clodronate against those of zoledronic acid. Based on the results, national

guidelines now recommend that all newly diagnosed myeloma patients are given zoledronic acid.

Your healthcare team may consider an alternative bisphosphonate is more appropriate depending on your circumstances. They will discuss the best option with you.

For more information see the **Myeloma bone disease Infoguide** from Myeloma UK

Why are bisphosphonates linked to ONJ?

The exact reasons why ONJ is linked to long-term use of some bisphosphonates are not fully understood. It has been suggested ONJ occurs because bisphosphonates disrupt normal bone remodelling, and affect the healing process after any trauma.

Bisphosphonates may also increase the risk of ONJ by reducing the blood supply to the bone.

Management of ONJ

The below precautions should be taken before you start bisphosphonate treatment. They are important to minimise the risk of ONJ:

- Your healthcare team should tell you about ONJ and its signs and symptoms. They should give you advice about what you can do to reduce the risks
- You should have a routine dental examination, X-ray, and any necessary invasive dental work carried out
- If you wear dentures, you should make sure these fit properly
- Invasive dental procedures should be avoided if possible when on bisphosphonates. If invasive treatment is absolutely necessary, this should be done by an oral surgeon experienced in ONJ. You may be taken off bisphosphonates for a period and restarted once healing is complete
- Once you are on regular bisphosphonate treatment it is important to maintain good mouth hygiene. Having regular dental check-ups is important for reducing the risk of ONJ. Read self-management tips on page 5

Treatment of ONJ

If you do develop ONJ, your healthcare team will prescribe treatment to help relieve symptoms and control infections as needed.

Treatment includes:

- Antiseptic mouth wash
- Painkillers
- Antibiotics

In more serious cases of ONJ, an oral surgeon may remove some of the dead tissue or bone from the area with a small operation called debridement. More major surgery of the jaw is usually avoided as this has not been reliably shown to help. A less invasive form of surgery using low-level lasers to remove necrotic cells has also been used. However, more research is needed before this treatment becomes more widely available.

Putting ONJ into perspective

Bisphosphonates are important in the management of myeloma bone disease. It is important to remember that ONJ is an uncommon complication of this treatment. If you have any concerns about your treatment or any side effects, you should discuss them with your healthcare team. You should never stop any of your treatments without first seeking their advice.

The length of time you have bisphosphonate treatment is usually decided by your healthcare team. It will also depend on a number of factors such as if you are in remission or if you require dental treatment.

It is generally recommended you have bisphosphonate treatment for a minimum of two years. After this time, there is variation in practice across hospitals in the UK. Some may continue bisphosphonates for a long time. Others may reduce how often it is given and some may stop bisphosphonates and restart at relapse. The best dose and schedule for bisphosphonate treatment is recognised as a question needing more research.

Self-management tips

Below are some things you can do to help reduce the risk of ONJ occurring:

- Maintain good mouth care. Brush your teeth regularly and use any mouthwashes prescribed
- Make sure dentures fit properly. If they rub or cause irritation, ask your dentist to adjust them

- Visit your dentist regularly for check-ups
- Make sure your dentist knows you are on bisphosphonate treatment
- Tell your healthcare team about any dental work you may need
- Look out for any symptoms in your mouth such as pain, numbness, or loosening of your teeth
- If you are on bisphosphonate treatment, you should report any symptoms like these to your healthcare team

For more information on mouth care see the **Mouth care Infosheet** from Myeloma UK

Key points

- ONJ is when one or more parts of the jawbone become exposed inside the mouth
- It may be caused by use of bisphosphonates to treat myeloma bone disease
- Signs and symptoms of ONJ include areas that will not heal after dental procedures, an area of exposed bone in the mouth, pain or swelling in the gums, loosening of teeth, or a heavy or numb feeling in the jaw
- Following self-management tips and maintaining good oral hygiene helps to prevent ONJ
- You should have a dental check-up and any necessary major dental work before starting bisphosphonate treatment. This includes work such as tooth implants and having teeth removed
- If major dental work is unavoidable, it should be carried out by an oral surgeon experienced in ONJ. Your bisphosphonate treatment may be stopped for a time, and restarted once your mouth has healed
- Treatment for ONJ includes the use of antiseptic mouth wash, painkillers, and antibiotics. Sometimes oral surgery is required

About this Infosheet

The information in this Infosheet is not meant to replace the advice of your healthcare team. They are the people to ask if you have questions about your individual situation.

For a list of references used to develop our resources, visit **myeloma.org.uk/references**

We value your feedback about our patient information. For a short online survey go to **myeloma.org.uk/pifeedback** or email comments to **patientinfo@myeloma.org.uk**

Other information available from Myeloma UK

Myeloma UK has a range of information booklets available covering all aspects of myeloma and related conditions. Download or order them from **myeloma.org.uk/publications**

To talk to one of our Myeloma Information Specialists about any aspect of myeloma, call our Myeloma Infoline on **0800 980 3332** or **1800 937 773** from Ireland.

The Infoline is open from Monday to Friday, 9am to 5pm and is free to phone from anywhere in the UK and Ireland.

Information and support about myeloma is also available at **myeloma.org.uk**

Symptoms and complications Infosheet:
Osteonecrosis of the jaw (ONJ)

MyelomaUK

We're here for everything a diagnosis of myeloma brings

Get in touch to find out more about how we can support you

Call the Myeloma Infoline on
0800 980 3332

Email Ask the Nurse at
AskTheNurse@myeloma.org.uk

Visit our website at
myeloma.org.uk

Trusted Information Creator
Patient Information Forum

Myeloma UK
22 Logie Mill, Beaverbank Business Park,
Edinburgh EH7 4HG
0131 557 3332
myelomauk@myeloma.org.uk
Registered Charity No: SC026116

Published by:	Myeloma UK
Publication date:	October 2011
Last updated:	February 2026
Review date:	February 2029