Myeloma Academy

MyelomaUK

Bisphosphonates

Myeloma Nurse Guide

The Myeloma Nurse Guide Series has been developed to enhance nurse knowledge, inform practice and support nurses in the delivery of high quality treatment and care to myeloma patients and families. The information has been reviewed by myeloma nurse and medical experts and should be used in conjunction with local and national policies, protocols and guidelines.

What are bisphosphonates?

Bisphosphonates are drugs used to treat and prevent skeletal-related events associated with myeloma bone disease. Myeloma bone disease occurs when myeloma cells disrupt normal bone remodelling, so bones are broken down (resorbed) faster than they are rebuilt. Bisphosphonates work by slowing down the activity of osteoclasts (bone cells that break down old bone), which reduces resorption. Bisphosphonates are also used to reduce bone pain and treat hypercalcaemia.

The bisphosphonates commonly used in myeloma are:

- Zoledronic acid (Zometa®), IV infusion monthly
- Disodium pamidronate (Aredia®), IV infusion monthly
- Sodium clodronate (Bonefos®, Clasteon®, Loron®), orally daily

Side effects

IV bisphosphonates

- Infusion site reactions (pain, inflammation)
- Flu-like symptoms (fatigue, muscle ache, joint pain, fever)
- Hypophosphataemia or hypocalcaemia
- Renal impairment
- Osteonecrosis of the jaw (ONJ) – exposed, necrotic, non-healing bone

Oral bisphosphonates

- Diarrhoea
- Nausea or vomiting
- Abdominal pain

Assessment and monitoring

Assessment features	Rationale
Dental examination and X-ray prior to starting treatment	To check if any invasive dental work is required before bisphosphonate treatment starts. Ideally any extractions required should be done before treatment starts.
Regular blood tests: serum creatinine, corrected calcium, phosphate, magnesium	To monitor renal function and check for electrolyte imbalance
Regular dental check-ups	To promote dental health and to reduce the risk of ONJ

Prevention and treatment

Zoledronic acid or Disodium pamidronate are generally used to treat moderate to severe hypercalcaemia, along with IV hydration. Patients with renal impairment may require a reduced dose of Disodium pamidronate instead of Zometa®. Information on individual drugs and dosage is available on the Electronic Medicines Compendium website: medicines.org.uk/emc.

Denosumab is a monoclonal antibody which may be considered for patients unable to have or tolerate bisphosphonate treatment. Currently an individual funding request is required for this treatment.

All patients with symptomatic myeloma receive bisphosphonate treatment for at least two years, unless contraindicated. If disease is stable after two years treatment, is usually either stopped or given less frequently. Treatment can be restarted if there is disease relapse.

During treatment, preventative measures and a modified dosing schedule if required, can greatly reduce the incidence of side effects.

Managing side effects

Renal impairment

- Advise patients to keep well hydrated, particularly before each IV infusion
- Be aware of bisphosphonate dose modification in renal impairment
- Ensure IV bisphosphonates are withheld if unexplained deterioration of renal function occurs, and alert medical staff. IV bisphosphonates are generally restarted when creatinine returns to within 10% of baseline level.

Hypocalcaemia

- Be aware of the signs of hypocalcaemia: neuromuscular irritability (paraesthesia, cramps and spasms), confusion and mood changes. Alert medical staff if these symptoms occur.
- Treatment may need to be withheld if patient becomes hypocalcaemic
- Oral supplements with calcium and vitamin D are generally prescribed for patients on zoledronic acid

Osteonecrosis of the jaw (ONJ)

- Patients who have had previous ONJ need individual assessment to determine type and frequency of bisphosphonate
- Explain to patients the risk of ONJ and symptoms to look out for (pain, swelling, loose teeth)
- Educate patients on oral hygiene and ensure they inform/remind their dentist they are on bisphosphonate treatment at each appointment
- Advise patients they can have routine cleaning and fillings without the need to interrupt bisphosphonates
- It is important to avoid extractions, periodontal work, and dental implants when on treatment. If these are unavoidable, bisphosphonates are generally stopped for several weeks. Referral to an oral/maxillofacial surgeon may be required.
- If ONJ does occur it is generally treated conservatively with painkillers, mouthwashes and antibiotics. Occasionally debridement is needed.

Gastrointestinal side effects (oral preparations)

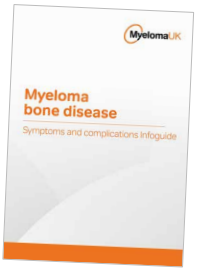
- Advise patients to take sodium clodronate on an empty stomach. Often it is easiest to take at bedtime.
- Advise not to eat calcium-containing products for at least two hours before and after taking oral bisphosphonates
- Monitor for symptoms of nausea and diarrhoea

Fatigue, malaise, muscle aches, fevers (IV infusions)

- Inform patients that symptoms may occur for up to three days after infusion
- Advise patients to report any fevers
- Advise that good hydration, rest and paracetamol may help

Patient information key points

- Provide written information on bisphosphonate treatment
- Explain how to recognise and report side effects of bisphosphonates, particularly ONJ
- Educate patients on good oral hygiene and dental care



References

A list of key references is available on Myeloma Academy:
academy.myeloma.org.uk/myeloma-nurse-guide-references

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For further nurse guides and other educational resources on myeloma and related conditions:
academy.myeloma.org.uk

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