

Bisphosphonate Infusions

Information for parents and carers

Pamidronate & Zoledronate



Why has my child been prescribed this treatment?

Sometimes your child's doctor may recommend bisphosphonate infusions if their bones are weaker than they should be, or because they have a condition that affects bone strength or causes bone pain. This treatment can help in conditions such as:

- Osteoporosis (bone thinning), including osteoporosis caused by steroids or inflammation
- Chronic Non-Infective Osteitis (CNO) - sometimes known as Chronic Recurrent Multifocal Osteomyelitis (CRMO)
- Other disorders affecting bone density.

The aim is to:

- Strengthen your child's bones
- Reduce the risk of fractures
- Improve pain and mobility.

How do bisphosphonates work?

Bones are constantly being broken down and rebuilt - this is called bone turnover. In some conditions, this happens too quickly, making bones thin and fragile.

Pamidronate and Zoledronate (sometimes known as Zoledronic acid), belong to a group of medicines called bisphosphonates. They work by:

- Slowing down bone breakdown
- Allowing more time for bone rebuilding
- Increasing bone density
- Reducing inflammation in certain bone conditions.

This helps improve bone strength over time and can reduce symptoms such as pain.

How are they given?

Both medicines are given through a drip (intravenous infusion) into a vein via a small plastic tube (cannula) in your child's arm or hand.

- The cannula can also be used to take blood tests
- A numbing cream or cold spray can be applied to the area before the cannula is inserted
- Your child can eat and drink normally before and during the infusion.

Pamidronate

- Given over 2-3 hours
- Normally given on 3 consecutive days, every 3 months, but can also be given on single days monthly, or on an 'as required' basis
- Often requires an overnight stay for the first treatment, particularly for younger children
- Once tolerated, can be given as a day visit to the day ward
- The same cannula is usually kept in for all infusions during the admission and covered securely if your child goes home overnight.

Zoledronate

- Given over about 1 hour
- First infusion may require an overnight stay for monitoring, particularly for younger children
- Infusions are given 3-6 monthly
- Infusion frequency and total number depend on your child's needs.

Before treatment

- **Blood tests** will typically be done before the first infusion and before each treatment to check:
 - Calcium, phosphate, alkaline phosphatase (ALP), albumin
 - Kidney function (urea, creatinine)
 - Vitamin D and parathyroid hormone (PTH) levels before starting treatment.
- **Calcium supplements** are needed for a few days before and after treatment to reduce the risk of low calcium levels.
- **Your child might need vitamin D supplements before treatment if their vitamin D level is low.**
- **Dietary advice:**
 - Calcium-rich foods: milk, cheese, yoghurt
 - Vitamin D sources: eggs, liver, fortified cereals.
- **Dental check-up** is important before starting - any untreated dental problems should be resolved to reduce the extremely rare risk of jawbone problems.
- Girls of childbearing age (over 12 years) will need a pregnancy test before the infusion.

After treatment

- Your child's response to treatment will be assessed in clinic
- A **bone density scan** (DEXA) may be useful depending on the reason they needed a Bisphosphonate infusion
- The healthcare team will review your child regularly to adjust the treatment plan.

How long will treatment last?

The exact length of treatment is tailored to each child's underlying condition, needs and response. This can vary from an every now and then 'as required' infusion, to regular infusions over a period of years. Your healthcare team will be able to communicate this with you.

Common side effects

These are usually mild, short-term, and most common after the first infusion:

- **Flu-like symptoms** (fever, aches, headache, nausea) for 24-48 hours - treated with paracetamol.
- **Low calcium levels** - prevented with supplements before the infusion and monitored before each infusion with a blood test. Low calcium levels can cause tingling or muscle cramps if severe – treated by increasing calcium supplement dose or in rare cases an infusion of calcium through a vein.
- **Vein irritation** - redness or a tracking line along the vein, usually mild and settles without treatment.

Less common or rare side effects

- Rash at cannula site
- High blood pressure
- Mild anaemia (low iron), or changes in blood salts (potassium, sodium, phosphate) - monitored in blood tests
- Rare jawbone problems (osteonecrosis) with long-term use - reduced by good dental care
- Very rare ear canal bone problems reported in adults with long-term treatment.

When to seek medical advice after an infusion

Contact your hospital team or go to A&E if your child:

- Has persistent or severe muscle cramps or tingling
- Develops swelling, redness, or pain at the cannula site that is getting worse
- Has a high fever that doesn't improve with paracetamol
- Appears unusually drowsy, shaky, or unwell.