
ZOLEDRONIC ACID TREATMENT

Why has the Doctor Recommended Treatment with Zoledronic Acid?

Zoledronic acid is one kind of medicine that belongs to a family of medicines called "bisphosphonates". These medications help to reduce the risk of broken bones (fractures) in children who have certain types of bone diseases such as osteoporosis or osteogenesis imperfecta, or who have fragile bones from other causes such as long-term steroid treatment.

How Does Zoledronic Acid Work?

Our bones undergo a continual process of renewal called "bone turnover", in which bone is removed and replaced by specialized cells to keep it strong and healthy. However, when more bone is removed than can be replaced, bone loss occurs. Healthy bone looks like a honeycomb. When bone is lost faster than it is made, the holes and spaces in the honeycomb become much larger, making the bone less dense, weaker, and more prone to breaking.

Zoledronic acid works by slowing down the activity of the bone-removing cells (called "osteoclasts"), leading to more bone formation and resulting in denser, stronger bones.

Zoledronic acid is given as an IV infusion (into a vein) over one hour. Children usually receive two infusions a year, although your child's schedule may vary. Many children will only need 1 to 3 years of treatment to make their bones significantly stronger. Some children need ongoing treatment, although often less frequently as they get older.

What are the Possible Side Effects of Zoledronic Acid Treatment?

There are two side-effects which happen fairly commonly following the first treatment with zoledronic acid. They almost always occur only after the first treatment and not with subsequent treatments. These two common side-effects are:

1) Flu-like symptoms:

- Symptoms may include headache, chills, fever, body aches, nausea or occasionally vomiting.
- For medications that will help with symptoms, see *Discharge Instructions* below.

2) Low calcium levels in the blood ("hypocalcemia"):

- Symptoms can include numbness or tingling in the hands, feet or around the mouth. This can progress to cause muscle cramping and spasms (particularly in the hands and feet) and jaw clenching. If this happens, encourage your child to drink a glass of milk and call the Endocrinologist-on-call (see *Discharge Instructions* below for paging number). For anything more worrisome, take your child to the nearest Emergency Room or call 911.

Other very uncommon side effects include:

- **Osteonecrosis of the jaw (ONJ):** This is a serious condition of the mouth and jaw bone. It is a rare side effect occasionally reported by adults but has **NEVER** been reported in a child or adolescent receiving zoledronic acid. ONJ seems to occur after invasive dental procedures (for example getting a tooth pulled) and is not related to routine dental care such as cleaning or getting cavities filled. Even though this has never been reported in children, it may be wise to arrange any major dental work before a dose of zoledronic acid is due, and wait until healing has occurred before receiving your next treatment.
- **Inflammation of the eye:** This is an extremely rare side effect, if your child develops blurred vision or eye pain, contact your doctor right away.
- **Other symptoms which occur very rarely and may or may not be related to treatment with zoledronic acid include dizziness, irregular or fast heart rate, feeling faint or confusion.** If your child experiences any of these symptoms, or others that are not listed here, and you are wondering if they are connected to their treatment, please contact their doctor or nurse.

DISCHARGE INSTRUCTIONS

Calcium: It is extremely important that your child have good calcium intake, to offset the blood calcium-lowering effects of the treatment. This can be done with good dairy intake (the equivalent of 3 to 4 glasses of milk per day), or by taking 3 Extra Strength Tums® a day. Do you have questions about dietary calcium? We can arrange for you to speak with our dietitian.

Vitamin D: Take 1000 IU (units) of Vitamin D3 every day (unless your physician has suggested a different dose) between now and the next treatment. Zoledronic acid does not work properly and can be potentially harmful if the Vitamin D level is too low.

Other medications: Here are some medications that your child can take that will help with the flu-like symptoms, should they occur:

- **Ibuprofen (Advil®, etc.):** Take every 6 to 8 hours as needed for pain and/or fever. Use the suggested dosage on the container, based on your child's weight.
- **Acetaminophen (Tylenol®, etc.):** Take every 4 to 6 hours as needed for pain and/or fever. Use the suggested dosage on the container, based on your child's weight.
- ***Ondansetron (Zofran®, etc.):** Take every 8 hours as needed for nausea (maximum of 3 doses every 24 hours).

*It is very important that your child is able to have near-normal food and water intake in the days after the zoledronic acid treatment. If your child has nausea which is preventing him/her from keeping down food and water, have the prescription for ondansetron filled at your local pharmacy.

Emergency Contacts:

For emergencies, please call 604-875-2161 and ask the operator to page the doctor on call for Pediatric Endocrinology. For routine questions, please call our Endocrine Nurses at 604-875-2117.