

Paediatric Endocrinology

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BISPHOSPHONATE TREATMENT

Your health care provider has recommended that your child would benefit from a course of treatment with a Bisphosphonate. The following information will be helpful for you to understand more about the treatment.

WHAT IS A BISPHOSPHONATE?

Bisphosphonates are a family of medications used to help slow down the rate of bone breakdown in children with certain types of metabolic bone diseases (Osteogenesis Imperfecta (OI), Osteoporosis, Paget's disease) or children with fragile bones related to other causes like cancers of the bone, or steroid treatments.

Bone is continually deposited and broken down in the body and the body works to keep the calcium levels in the blood within a normal range. If calcium levels are too low, the body will pull calcium from the bones to enter the bloodstream. Bisphosphonates act to prevent that breakdown of bone, thereby resulting in stronger, denser bones.

HOW IS IT GIVEN?

Bisphosphonates are given by an intravenous infusion over a one or three hour period. The infusion will be given on an outpatient basis in the Paediatric Medical Day Unit (B1-Room 318) here at Children's Hospital. The length of time between infusions will vary depending on the medication used and the needs of your child.

WHAT YOUR DOCTOR NEEDS TO KNOW BEFORE PRESCRIBING BISPHOSPHONATES?

Your doctor will need a full medical history and physical examination of your child. You will need to provide a list of all other medications prescribed for your child, including vitamin supplements. Please advise your doctor if your child has any history of heart, liver or kidney problems that can increase the possibility of complications from the treatment. The doctor may also ask about any dental problems or dental procedures planned for the future, as the treatment can cause an increased risk of problems with the jaw bone (in the case of dental extractions).

A number of tests may be ordered by your doctor to determine if this is the right course of treatment for your child. These tests can include: blood and urine tests, a bone mineral density scan (DEXA scan) and/or x-ray of the spine to assess the health of the bones.

WHAT ARE THE POSSIBLE SIDE EFFECTS OF BISPHOSPHONATES?

There are some common side effects that can occur the first time children receive a bisphosphonate, usually within three days. These side effects do not usually happen with subsequent treatments.

Acetaminophen (Tylenol © or Tempra ©) can provide for relief of the following:

- Flu-like symptoms, including body aches, chills, fever, tiredness
- Headaches
- Sore throat
- Muscle cramps or joint pain
- Nausea or abdominal cramps

The most notable side effect of Bisphosphonate treatment is low calcium in the blood (hypocalcaemia). Bisphosphonates remove the body's ability to increase calcium in the bloodstream. Hypocalcaemia is usually experienced as tingling or numbness in the hands and feet and/or muscle cramps. Low calcium can be easily treated by consuming calcium in the form of dairy products or a dietary supplement.

More serious side effects are very uncommon however if your child experiences any of the following, call your child's doctor right away or take your child to the Emergency department:

- Shortness of breath or dizziness
- Confusion or seizures
- Swelling of hands or feet
- Blurred vision
- Fast or irregular heart beat
- Swelling of the jaw

WHAT ARE MY RESPONSIBILITIES FOR SUCCESSFUL TREATMENT?

The most important responsibility for anyone taking a Bisphosphonate is to make sure to follow the doctor's instructions regarding calcium and vitamin D intake through the course of treatment. It is very important that enough calcium is consumed every day, either through fortified dairy products (i.e. milk, yogurt) or in the form of calcium/vitamin D supplements. Additionally, weight bearing physical activities help build healthy bones and are recommended whenever possible.

Always check with your doctor or pharmacist before giving your child any other medications and/or non-prescription or natural supplements.

See the Resources section attached for helpful websites and more information.

BISPHOSPHONATE TREATMENTS

NAME	DRUG NUMBER (DIN)	DESCRIPTION
PAMIDRONATE	3mg/ml x 10ml 02264951 6mg/ml x 10ml 02264978	Given by IV once per day for 3 days every 4 months
ZOLEDRONIC ACID-"ACLASTA"	5mg/100ml x100ml 00269198	Given by IV once every 6 months (Single use vial)
ZOLEDRONIC ACID-"ZOMETA"	4mg/5ml x 5ml 02242725	Given by IV once every 6 months (Single use vial)

RESOURCES:

<http://ods.od.nih.gov/factsheets/calcium.asp>

<http://bcdairy.ca/nutritionaleducation/calciumcalculator>

<http://aboutkidshealth.ca/En/HealthAZ-> select DRUGS A-Z PAMIDRONATE

<http://www.sickkids.ca> - select HEALTH A-Z OSTEOPOROSIS

REFERENCES:

"What you need to know about PAMIDRONATE", Alberta Children's Hospital.

Family Med-Aid, "Pamidronate". The Hospital for Sick Children Toronto, Sick Kids #44658, 2007

"Welcome to the Zoledronic Acid Bone Health Clinic", Leanne M. Ward MD, Director-Paediatric Bone Health Clinical Program, CHEO.

"Compendium of Pharmaceuticals and Specialties: The Canadian Drug Reference for Health Professionals", Canadian Pharmacists Association.