

## Bisphosphonate Patient Information Sheet

### 1. What are bisphosphonates?

Bisphosphonates are a type of medication that prevent bone loss. Normally, bone is lost and new bone is formed in a cyclical process which results in overall bone formation. This process is disrupted in some patients and, therefore, they cannot make adequate amounts of new bone. Bisphosphonates prevent bone loss from occurring so that only bone formation can take place. In this manner, bisphosphonates help build bone and are considered by many experts to be the medication of choice for osteoporosis treatment in adults. Bisphosphonates can also be used for treatment in children with osteogenesis imperfecta (OI) and other diseases or syndromes that affect bone formation.



### 2. What types of bisphosphonates are available?

There are pill and intravenous (IV) injection forms of bisphosphonates available. There is little difference in the action of IV versus oral medication. Commonly used bisphosphonates in children include:

IV: pamidronate, zoledronic acid      Oral: alendronate, risedronate

### 3. What supplements should I be taking while on bisphosphonate therapy?

It is important to take vitamin D supplements and/or multivitamin and to receive adequate calcium (through the diet or supplements) while on bisphosphonate therapy. Your doctor will make sure you are not vitamin D deficiency before starting this therapy. See recommended daily allowances below:

Vitamin D: 1 year-adulthood: 600 IU +  
Calcium: 9-18 years: 1300mg  
19- adulthood: 1000mg

\* Note that vitamin D can be supplied as vitamin D2 (ergocalciferol) or vitamin D3 (or cholecalciferol).

Foods that contain calcium include milk, yogurt, cheese, fortified foods such as cereal and orange juice; those rich with vitamin D include fatty fish, fortified foods such as milk, cereal and orange juice. A general goal would be 3-4 servings of calcium-rich foods and beverages per day.

4. Are there side effects that occur with taking bisphosphonates?
  - Right after the first treatment of IV bisphosphonates, you may experience:
    - Fever, chills, and/or general malaise (flu-like symptoms). These flu-like symptoms occur only around the first infusion of the medication.
      - To lessen symptoms that may be associated with such a reaction, we recommend taking a weight- appropriate dose of Tylenol every 6 hours for the first 24 hours after the first bisphosphonate infusion.
  - Within 1-2 weeks of starting treatment you may experience:
    - Bone pain
      - This can be treated with Motrin or Tylenol for duration of pain.
      - Pain is also typically associated only with the first reaction.
  - Other side effects are listed below. Most are mild and reversible. If any of these symptoms are severe or persist for a long time, contact your doctor.

For **IV** medications, side effects may include:

- redness, swelling, or pain in the injection spot
- nausea
- other digestive problems (pain, constipation, diarrhea, etc)
- heartburn
- fever or chills
- bone/muscle pain
- difficulty falling asleep or staying asleep
- headache
- dizziness
- fatigue
- cough
- difficulty urinating or painful urination
- swelling of the hands, arms, feet, ankles, or lower legs
- red, swollen, or teary eyes
- numbness, burning, or tingling in fingers or toes

For **oral** medications may include

- nausea
- abdominal bloating/gas
- other digestive issues (pain, constipation, diarrhea)
- headache
- dizziness
- muscle or bone pain
- swelling of the joints, hands or legs
- dry mouth
- weakness

Note that if a patient has a seizure disorder, changes in calcium associated with the medication may result in an increased frequency of seizures.\*

\* If this occurs patient should have his/her blood calcium level checked. Calcium level in blood may be decreased in this case, however this should resolve on its own. Your health care provider will be able to advise you appropriately.

## 5. When should I stop taking bisphosphonates?

This is at the discretion of your health care provider. However studies have shown that it may be beneficial to continue bisphosphonate therapy until you have reached adult height in order to prevent decline in bone mass. Additionally, it is important to note that bisphosphonates can stay in the body for a few years after discontinuation of therapy and you may continue to gain bone mass.