Zoledronic Acid

Class: Bisphosphonate Derivative

Indications:

Oncology-related uses: Treatment of hypercalcemia of malignancy (albumin-corrected serum calcium >12 mg/dL); treatment of multiple myeloma; treatment of bone metastases of solid tumors

Nononcology uses: Treatment of Paget's disease of bone; prevention and treatment of osteoporosis in postmenopausal women; treatment of osteoporosis in men; treatment and prevention of glucocorticoid-induced osteoporosis (in patients initiating or continuing prednisone ≥7.5 mg/day [or equivalent] and expected to remain on glucocorticoids for at least 12 months)

Prevention of bone loss associated with aromatase inhibitor therapy in postmenopausal women with breast cancer; prevention of bone loss associated with androgen deprivation therapy in prostate cancer (unlabeled use)

Available dosage form in the hospital: 4MG Vial

Dosage:

-Hypercalcemia of malignancy (albumin-corrected serum calcium ≥12 mg/dL) (Zometa): I.V.: 4 mg (maximum) given as a single dose. Wait at least 7 days before considering retreatment.

-Multiple myeloma or metastatic bone lesions from solid tumors (Zometa): I.V.: 4 mg once every 3-4 weeks

-Osteoporosis, glucocorticoid-induced, treatment and prevention (Reclast, Aclasta [Canadian brand]): I.V.: 5 mg once a year

-Osteoporosis, prevention: I.V.: Reclast: 5 mg once every 2 years, Aclasta (Canadian brand): 5 mg as a single (one-time) dose

-Osteoporosis, treatment (Reclast, Aclasta [Canadian brand]): I.V.: 5 mg once a year; consider discontinuing after 3-5 years of use in patients at low risk for fracture

-Paget's disease: I.V.:Reclast: 5 mg as a single dose. Note: Data concerning retreatment is not available; Aclasta (Canadian brand): 5 mg as a single dose. Data concerning retreatment is limited; retreatment with 5 mg (single dose) may be considered for relapse after an interval of at least 1 year from initial treatment.

-Prevention of aromatase inhibitor-induced bone loss in breast cancer (unlabeled use): I.V.: 4 mg once every 6 months for 5 years

-Prevention of androgen deprivation-induced bone loss in nonmetastatic prostate cancer (unlabeled use): I.V.: 4 mg once every 3 months for 1 year or 4 mg every 12 months

Renal Impairment: **Note:** Prior to each dose, obtain serum creatinine and calculate the creatinine clearance using the Cockcroft-Gault formula.

Non oncology uses: Note: Use actual body weight in the Cockcroft-Gault formula when calculating clearance for nononcology uses.

- Clcr ≥35 mL/minute: No dosage adjustment required.
- Clcr <35 mL/minute: Use is contraindicated.

Oncology uses:

Multiple myeloma and bone metastases:

- Clcr >60 mL/minute: 4 mg (no dosage adjustment necessary)
- Clcr 50-60 mL/minute: Reduce dose to 3.5 mg
- Clcr 40-49 mL/minute: Reduce dose to 3.3 m
- Clcr 30-39 mL/minute: Reduce dose to 3 mg
- Clcr <30 mL/minute: Use is not recommended.

Hypercalcemia of malignancy:

- Mild-to-moderate impairment: No dosage adjustment necessary.
- Severe impairment (serum creatinine >4.5 mg/dL): Evaluate risk versus benefit, not recommended.

Dosage adjustment for renal toxicity (during treatment):

- Hypercalcemia of malignancy: Evidence of renal deterioration: Evaluate risk versus benefit.
- Multiple myeloma and bone metastases: Evidence of renal deterioration: Withhold dose until renal function returns to within 10% of baseline[Renal deterioration defined as follows:

  -Normal baseline creatinine: Increase of 0.5 mg/dL,

  -Abnormal baseline creatinine: Increase of 1 mg/dL]

- Reinitiate therapy at the same dose administered prior to treatment interruption.
- Multiple myeloma: Albuminuria >500 mg/24 hours (unexplained): Withhold dose until return to baseline, then re-evaluate every 3-4 weeks; consider reinitiating with a longer infusion time of at least 30 minutes

Common side effect:

Cardiovascular (onocology): Leg edema, hypotension

Central nervous system (oncology and nononcology indications): Fatigue, fever , headache, dizziness, insomnia, anxiety, depression, agitation, confusion, hypoesthesia.

Dermatologic: Alopecia, dermatitis

Endocrine & metabolic: Dehydration, hypophosphatemia, hypokalemia, hypomagnesemia

Gastrointestinal: Nausea, vomiting, constipation, diarrhea, anorexia , abdominal pain , weight loss, appetite decreased

Genitourinary: Urinary tract infection

Hematologic: Anemia, neutropenia

Neuromuscular & skeletal (oncology and nononcology indications) : Bone pain, weakness, myalgia, arthralgia, back pain, paresthesia , limb pain , skeletal pain, rigors

Renal: Renal deterioration (up to 40% in patients with abnormal baseline creatinine)

Respiratory: Dyspnea, cough

Miscellaneous: Acute phase reaction, flu-like syndrome

Pregnancy Risk Factor: D