Pamidronate

Brand names	Aredia
Medication error potential	Look-alike, sound-alike drug names USP reported the potential for confusion between pamidronate and papaverine.[1]
Contraindications and warnings	**Contraindications:** Hypersensitivity to pamidronate or other bisphosphonates.[2] **Warnings:** Pamidronate should be infused slowly over at least 2 hours to avoid renal impairment.[2]
Infusion-related cautions	Infusion site reactions are more likely to occur with larger doses.[2]
Dosage	**Osteogenesis imperfecta:** Regimens vary. Calcium and vitamin D supplements should be provided. Treatment may be continued for several years. Because of concerns over growth, one group discontinued treatment for 2 years and found that bone metabolism continued to be suppressed, improvements in bone mass continued, but children did not achieve normal bone growth.[3]The most benefit has been shown to occur in the first 2–4 years of treatment.[3] **Neonates, infants, and children <2 years:** 0.25 mg/kg once on day 1, followed by 0.5 mg/kg daily on days 2 and 3 of the first cycle; then 0.5 mg/kg daily for 3 days for subsequent cycles. Repeat cycles every 2 months for a total annual dose of 9 mg/kg.[4,5] **Children 2–3 years:** 0.38 mg/kg once on day 1, followed by 0.75 mg/kg daily on days 2 and 3 of the first cycle, then 0.75 mg/kg daily for 3 days for subsequent cycles. Repeat cycles every 3 months for a total annual dose of 9 mg/kg. **Children >3 years:** 0.5 mg/kg once on day 1, then 1 mg/kg daily on days 2 and 3 of the first cycle; then 1 mg/kg daily for 3 days for subsequent cycles. Repeat cycles every 4 months for a total annual dose of 9 mg/kg. **Osteoporosis/osteopenia:** 0.4–1 mg/kg over 2–4 hours for 3 days q 3–6 mo for up to 13 months in children with cerebral palsy.[6,7] Seventeen children on steroids for endocrine or renal disease who developed fractures were given 1 mg/kg q 2 mo for 1 or 2 years.[8] Patients were also prescribed calcium and vitamin D supplements.[7,8] Fifteen children with osteoporosis received either 1 mg/kg for one day q 3 mo or 1 mg/kg/day for 3 days q 4 mo with comparable increases in adjusted bone mineral density.[9] **Hypercalcemia:** 0.5–1 mg/kg[10-14] or 35–50 mg/m^2[15] over 2–6 hours as a single dose (maximum dose 90 mg) or repeated for 1[15] or 2 more days.[13] One group repeated the initial 0.5 mg/kg dose on days 1–3 and then decreased the dose to 0.25 mg/kg on day 4 and 0.125 mg/kg on day 5.[16] **McCune-Albright syndrome:** 0.5 mg/kg over 4 hours for 3 days each year, 1 mg/kg over 4 hours for 3 days q 6 mo, or 1 mg/kg for 3 days q 4 mo for up to 6 years,[17] or 1 mg/kg over 4 hours for 3 days q 6 mo for 2 years.[18]
Dosage adjustment in organ dysfunction	None recommended by manufacturer, but use is not recommended in patients with severe renal impairment.[2] However, in those whose renal function deteriorates during treatment, the dose should be held until renal function returns to baseline.[2] Longer infusions (>2 hours) in patients with preexisting renal insufficiency may reduce the risk of renal toxicity.[2] One report described three children with renal failure or who were postrenal transplant with either fractures or hypercalcemia who were given 1–3 doses of 0.4–0.5 mg/kg without ill effects.[19]
Maximum dosage	1.5 mg/kg q 2 mo has been used in osteogenesis imperfecta.[20] 90 mg q 3–4 wk in *adults* with metastatic bone disease.[2] Single doses should not exceed 90 mg due to renal effects.[2]

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Additives	470 mg mannitol in 30-mg vials. 375 mg mannitol in 90-mg vials.[2]
Suitable diluents	D5W, ½NS, NS[2]
Maximum concentration	0.36 mg/mL[2]
Preparation and delivery	Reconstitute 30 or 90 mg lyophilized powder in 10 mL SW. Dilute reconstitution in 250 mL to 1 L of D5W, ½NS, NS. **Compatibility:** Incompatible with calcium-containing fluids (including LR) and other parenteral drugs.[2]
IV push	Contraindicated
Intermittent infusion	In *adults*, 30–90 mg over ≥2–4 hours. Longer infusion times decrease the risk for renal toxicity.[2]
Continuous infusion	90 mg infused over 24 hours in *adults*[2]
Other routes of administration	Not indicated[2]
Comments	**Monitoring:** SCr should be measured before each infusion.[2] **Adverse effects:** A transient, low-grade fever for 24–48 hours is common after the first infusion. The frequency of this reaction decreases with subsequent infusions.[2,8,10,17] Symptomatic and asymptomatic hypocalcemia has been reported.[2,12] Osteonecrosis of the jaw has been reported in *adult* cancer patients on chemotherapy who also receive pamidronate. It is recommended that while on pamidronate invasive dental procedures should be avoided.[2] Twenty-two children who underwent 38 dental procedures exhibited no evidence of jaw osteonecrosis.[21]

REFERENCES

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