Pamidronate (as disodium) Intravenous for Adults

Who can administer

May be administered by registered competent doctor or nurse/midwife

Important information

- **Unlicensed preparation**
- See under 'Dose' for adjustments required in renal impairment
- Patients must be adequately hydrated, especially important for patients receiving diuretic therapy
- Aredia brand has been discontinued. Only available as a generic - see below

Available preparations

Disodium pamidronate

- 30mg per 10mL vial
- 90mg per 10mL vial

Reconstitution

Already in solution

Dilute further prior to administration

Infusion fluids

Sodium chloride 0.9% (preferred) or Glucose 5% [ref 1]

Methods of intravenous administration

Intermittent intravenous infusion (administer using an electronically controlled infusion device)

- The concentration in the infusion solution should not exceed 90mg/250mL - this is usually given over two hours
- Maximum rate is 60mg per hour (20mg per hour if eGFR less than 50mL/minute/1.73m^2) [ref 2]
- **Multiple myeloma and Tumour-induced hypercalcaemia**: rate should not exceed 90mg in 500mL over four hours
- Use a large vein to minimise local reactions at the infusion site

Dose in adults

Osteolytic lesions and bone pain in bone metastases associated with breast cancer and multiple myeloma

- Give 90mg as a single dose, every four weeks
- The dose may be administered at three-weekly intervals to coincide with chemotherapy if desired

Tumour-induced hypercalcaemia

- Patients with tumour-induced hypercalcaemia should be rehydrated with sodium chloride 0.9% PRIOR to treatment
- The total dose per treatment course depends on the patient's initial serum calcium level
- The ranges given apply to both corrected and uncorrected calcium values

Initial serum calcium (millimol/L)	Recommended total dose
up to 3	15 to 30mg
3 to 3.5	30 to 60mg
3.5 to 4	60 to 90mg
Greater than 4	90mg

- The total dose may be administered either as a single infusion or in divided doses over two to four consecutive days
- The maximum dose per treatment course is 90mg for both initial and repeat courses
- Titrate to response - a significant decrease in serum calcium is generally observed 24 to 48 hours after administration, and normalisation is usually achieved within 3 to 7 days
- If normocalcaemia is not achieved within this time, a further dose may be considered
- The duration of the response may vary from patient to patient, and treatment can be repeated whenever hypercalcaemia recurs
- Clinical experience to date suggests that pamidronate may be less effective as the number of treatments increases

Predominantly lytic bone metastases and multiple myeloma

- Give 90mg every four weeks
- The dose may be administered at three-weekly intervals to coincide with chemotherapy if desired

Pagets disease of bone

- Usual dose: 60mg every two weeks for three doses, or 30mg weekly for six weeks to total dose of 180mg
- If unit doses of 60mg are being used, it is recommended that treatment be started with an initial dose of 30mg to minimise side effects.i.e. 30mg, 60mg, 60mg, 60mg (total dose 210mg)
- Repeated doses up to a total of 360mg (in divided doses, each of 60mg) may be required within any 6-month period

Renal impairment

- Pamidronate should not be administered to patients with severe renal impairment (eGFR less than 30ml/min/1.73m^2), unless in life-threatening tumour-induced hypercalcaemia where the benefit outweighs the potential risks.
- The Renal drug database provides some guidance on doses for patients with renal impairment - no dosage adjustment required if creatinine clearance is greater than 10ml per minute. Where creatinine clearance is less than 10ml per minute- the dose should be 60mg if serum calcium is greater than 4mmol/L, and 30mg if serum calcium is less than 4mmol/L [(ref 2)]
- A maximum rate of 20mg/hour should not be exceeded in patients with renal impairment [(ref 2)]
- As pamidronate has been associated with renal toxicity, serum creatinine should be checked prior to each dose of the drug

Hepatic impairment

- Pamidronate should be used with caution in patients with severe hepatic impairment

Monitoring

- Renal function, serum electrolytes, calcium and phosphate should be monitored following initiation of therapy with pamidronate
- Monitor serum creatinine prior to each dose of pamidronate

Further information

- Osteonecrosis of the **jaw** has been reported predominantly in patients with cancer receiving treatment regimens including bisphosphonates
- A dental examination with appropriate preventive dentistry should be considered prior to treatment with bisphosphonates in patients with concomitant risk factors (e.g. cancer, chemotherapy, corticosteroids, poor oral hygiene)
- While on treatment, these patients should avoid invasive dental procedures if possible, and should maintain good oral hygiene. For more infomation, see SPC
- In the absence of hypercalcaemia, patients with predominantly lytic bone metastases or multiple myeloma, who are at risk of calcium or Vitamin D deficiency and patients with Paget's disease of the bone should be given oral calcium and vitamin D supplementation, to minimise the risk of hypocalcaemia

Storage

- Store below 25^{0}C

References

SPC (Mylan) December 2015

SPC (Pinewood) December 2020

1: Injectable Medicines Administration Guide Medusa downloaded 26/10/2021

2: Renal drug database accessed online 08/03/0222

Therapeutic classification

Bisphosphonate