

**GUIDELINE FOR ADMINISTERING INTRAVENOUS FUROSEMIDE**

**Clinical indication**

For those patients with acute pulmonary oedema or decompensated heart failure in need of prompt diuresis

**Product information**

Available in vials of 20mg/2ml, 50mg/5ml and 250mg/25mls

i.e. 10mg per ml

**Method of administration**

In patients with acute heart failure it is not appropriate to dilute intravenous furosemide.

Doses of up to 50mgs may be given as a slow IV bolus. Doses larger than this must be given by slow intravenous infusion.

Where dose of IV furosemide is greater than 50mgs, draw up neat solution of required dose e.g 120mgs (12mls) in a 20ml syringe including volume required to fill giving set (1.3mls) This will ensure the patient receives the full 120mg dose.

The syringe must be labelled with the drug name, date and time of setting up infusion.

NOTE : The syringe should be changed every 24hours irrespective of any volume remaining.

The infusion must be given at a rate of no more than 4mg/minute (to reduce ototoxicity)

Therefore for 120mg dose for example:

120/4 = 30mins

Run infusion at 24.0mls/hour

The recommended maximum dose of furosemide administration is 1500mgs in 24hours (eMC, 2014)

NOTE: furosemide is incompatible with dextrose solutions, it will precipitate.

**Contraindications**

Hypovolaemia or dehydration, severe hypokalaemia or hyponatraemia, comatose or pre-comatose associated with hepatic encephalopathy, anuria or renal failure with anuria not responding to furosemide, renal failure due to nephrotoxic or hepatotoxic drugs, breastfeeding women (passes into breast milk and may inhibit lactation).

Hypersensitivity to furosemide or any of the excipients (sodium hydroxide, sodium chloride).

Patients allergic to sulphonamides may be sensitive to furosemide

**Hepatic impairment**

Hypokalaemia may precipitate coma, increased risk of hypomagnesaemia in alcoholic cirrhosis

**Renal impairment**

May need high doses

**Side effects**

Generally well tolerated

Mild gastro-intestinal disturbances; electrolyte disturbances including hyponatraemia, hypokalaemia, hypocalcaemia and hypomagnesia and metabolic acidosis; hypotension; hyperglycaemia; hyperuricaemia and gout

*Rarely –* paraesthesia, blood disorders , bone marrow depression, tinnitus and deafness, hypersensitivity reactions, pancreatitis, intrahepatic cholestasis; temporary increase in plasma cholesterol and triglyceride concentration also reported – during long term treatment these usually return to normal within six months.

**Pharmacokinetics**

**Bioavailability –** rapidly but incompletely absorbed on oral administration **(**60-70%), but reduced by gastro-intestinal oedema in CHF

**Excretion –** mainly eliminated via kidneys (renal impairment has little effect on the elimination rate but <20% residual renal function will increase the elimination rate)

**Onset of action –** 2-5 minutes IV, 30-60 minutes given orally

**Peak effect** **-** 1-2 hours

**Plasma half-life** **-** 50 min-6 hours in heart failure, 10 hours in end stage renal failure

**Duration of action -** 4-6 hours

**Precautions/Monitoring**

Monitor blood pressure as required

Daily U&E’s (minimum every other day depending on renal function)

Daily weights *(****aim for 1kg weight loss per 24hours and adjust dose according to response****)*

Fluid balance charts *(****aim for –ve 1000ml balance per 24hrs and adjust dose according to response****)*

Ensure urinary output secure (patients with partial obstruction of urinary outflow e.g. prostate enlargement, have an increased risk of developing acute retention and require close monitoring)

If you require more information please contact Medicines Information.

Last updated 01/2015

*(to add hyperlinks to Injectable meds/EMC/ BNF/Formulary)*