

MANNITOL

Class: Diagnostic Agent;Diuretic, Osmotic;Genitourinary Irrigant

Indications Injection: Reduction of increased intracranial pressure associated with cerebral edema; reduction of increased intraocular pressure; promoting urinary excretion of toxic substances; genitourinary irrigant in transurethral prostatic resection or other transurethral surgical procedures

Genitourinary irrigation solution: Irrigation in transurethral prostatic resection or other transurethral surgical procedures

Powder for inhalation: Assessment of bronchial hyper-responsiveness. Improve renal transplant function

Available dosage form in the hospital: 20% INFUSION 500 ML

Dosage:

-Assessment of bronchial hyper-responsiveness: Inhalation: Administer in a stepwise fashion (measuring FEV₁ in duplicate after each administration) until the patient has a positive response or 635 mg of mannitol has been administered (whichever comes first).

-Positive test: 15% reduction in FEV₁ from baseline or 10% incremental reduction in FEV₁ between consecutive doses

-Negative test: Administration of full dose (635 mg) without reduction in FEV₁ sufficient to meet criteria for a positive test.

Administration should be as follows:

Stepwise Administration Schedule			
Dose #	Dose (mg)	Cumulative Dose (mg)	Capsules/Dose
1	0	0	1
2	5	5	1
3	10	15	1
4	20	35	1
5	40	75	1
6	80	155	2 x 40 mg caps
7	160	315	4 x 40 mg caps
8	160	475	4 x 40 mg caps

Stepwise Administration Schedule			
Dose #	Dose (mg)	Cumulative Dose (mg)	Capsules/Dose
9	160	635	4 x 40 mg caps

-Increased intracranial pressure, cerebral edema (unlabeled dosing): I.V.: 0.25-1 g/kg/dose; may repeat every 6-8 hours as needed (Adelson, 2003; Bratton, 2007); maintain serum osmolality <300-320 mOsm/kg

-Reduction of intraocular pressure: I.V.: 0.25-2 g/kg administered over 30-60 minutes 1-1.5 hours prior to surgery

-Reduction of intraocular pressure (traumatic hyphema): I.V.: 1.5 g/kg administered over 45 minutes twice daily for IOP >35 mm Hg; may administer every 8 hours in patients with extremely high pressure.

-Severe traumatic brain injury (unlabeled use): I.V.: ~1.4 g/kg as initial management prior to neurosurgery with concurrent fluid replacement

-Kidney transplant:

-Donor: 12.5 g (with adequate hydration) prior to nephrectomy; may repeat

-Recipient: 50 g before kidney revascularization

-Transurethral irrigation: Topical: Use 5% urogenital solution as required for irrigation.

Geriatric

Refer to adult dosing. Consider initiation at lower end of dosing range.

Common side effect: Cardiovascular: Chest pain, CHF, circulatory overload, hyper-/hypotension, peripheral edema, tachycardia

Central nervous system: Chills, convulsions, dizziness, fever, headache

Dermatologic: Bullous eruption, urticaria

Endocrine & metabolic: Fluid and electrolyte imbalance, dehydration and hypovolemia secondary to rapid diuresis, hyperglycemia, hypernatremia, hyponatremia (dilutional), hyperosmolality-induced hyperkalemia, metabolic acidosis (dilutional), osmolar gap increased, water intoxication

Gastrointestinal: Nausea, vomiting, xerostomia

Pregnancy Risk Factor: C