Supplemental Digital Content File 5**:** Reported complications associated with mannitol administration.The evidence is in order of category and year of publication.

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| **Complications** | **Patient information** | **Mannitol administration** | **Clinical outcome** | **Year of report** |
| ***Electrolyte abnormality*** |
| Hyponatremia  | 69 yo M, TURP | 1.3% mannitol solution, irrigation | Recovered  | 1979120 |
| Hyponatremia | 34 yo M, craniotomy for AVM | Mannitol 200 g, i.v. (% unspecified) | Recovered  | 1981121 |
| Hyponatremia, anuria  | 25 yo M, kidney transplantation | Mannitol 90 g, i.v. (% unspecified) | Recovered | 1981121 |
| Hyperkalemia  | 83 yo F, meningoencephalitis | Mannitol 20 g, i.v. (% unspecified) | Recovered  | 1988122 |
| Hypoxemia | 54 yo M, CABG and VAR with CPB | 20% mannitol, i.v. (dose unspecified) | Recovered  | 1989123 |
| Hyponatremia  | 45 yo M, craniotomy for SAH | 20% mannitol 250 ml, i.v. | Recovered  | 1994124 |
| Hypocalcemia, hypokalemia, abnormal ECG | 68 yo F, glaucoma | Mannitol 1.5 g/kg/d, i.v. (% unspecified) | Recovered  | 1995125 |
| Hyperkalemia, abnormal ECG | 52 yo M, SAH | Mannitol 60 g, i.v. (% unspecified) | Recovered  | 2000126 |
| Hyperkalemia, abnormal ECG | 34 yo M, intracerebral hemorrhage | 20% mannitol 300 ml, i.v. | Recovered | 2005127 |
| Hyperkalemia, abnormal ECG | 68 yo M, intracerebral hemorrhage | 20% mannitol 500 ml, i.v. | Recovered  | 2005127 |
| Hyperkalemia, abnormal ECG | 15 yo M, AVM resection | 20% mannitol 300 ml, i.v. | Recovered  | 2006128 |
| Hyperkalemia, hyponatremia, abnormal ECG | 31 yo F, craniotomy for astrocytoma resection | Mannitol 80 g, i.v. (% unspecified) | Recovered  | 2007129 |
| Hyperkalemia, cardiac arrest | 41 yo M, craniotomy for aneurysm clipping | 20% mannitol 120 g, i.v. | Recovered  | 2007130 |
| Hypocalcemia, hyponatremia, hyperglycemia | 51 yo F, hysteroscopy | 2.7% sorbitol and 0.54% mannitol, irrigation | Recovered  | 2009131 |
| Hyperkalemia | 43 yo M, craniotomy for tumor resection | Mannitol 300 ml, i.v. (% unspecified) | Recovered  | 2010132 |
| Hyperkalemia, abnormal ECG | [43](http://www.ncbi.nlm.nih.gov/pubmed/?term=Fanous%20AA%5BAuthor%5D&cauthor=true&cauthor_uid=27086258) yo M, craniotomy for tumor resection | Mannitol 80 g, i.v. (% unspecified)  | Recovered  | 2016133 |
| ***Pulmonary complications*** |
| Pulmonary edema, oliguria, Na+↓ | 7 yo F, cerebral edema | 20% mannitol 3250 ml\*, i.v. | Recovered  | 1981134 |
| Pulmonary edema, oliguria, Na+↓ | 10 yo M, cerebral edema | 20% mannitol 2900 ml\*, i.v. | Recovered  | 1981134 |
| Pulmonary edema, anuria, Na+↓ | 72 yo F, intraocular hypertension with mild renal insufficiency  | 20% mannitol 1300 ml\*, i.v. | Died  | 1981135 |
| Pulmonary edema, anuria | 77 yo F, intraocular hypertension after cataract surgery | 20%mannitol 2500 ml\* over 3 days, i.v. | Recovered  | 2008136 |
| Pulmonary edema, hyponatremia | 60 yo M, TURP | 5% mannitol 40 L, irrigation | Recovered  | 2009137 |
| Pulmonary edema, hyponatremia | 64 yo M, TURP | 5% mannitol 361 ml, irrigation | Recovered  | 2009137 |
| ***Renal complications*** |
| Oliguric, Cr↑, BUN↑, Na+↓, K+↑ | 74 yo M, oliguria | 20% mannitol 1000 ml, i.v. | Recovered  | 1981138 |
| Anuria, Cr↑, BUN↑, Na+↓, K+↑ | 21 yo M, acute narrow-angle glaucoma. | Mannitol 1200 g\* over 2 days, i.v. (% unspecified) | Recovered  | 1984139 |
| Oliguria, Cr↑, BUN↑, Na+↓, K+↑ | 16 yo M, intracranial hypertension after car accident | Mannitol 50-100 g, i.v. (% unspecified) | Recovered, then died of sepsis | 1984140 |
| Oliguria, Cr↑, BUN↑, Na+↓, K+↑ | 28 yo M, acute subdural hematoma | Mannitol 900 g\* over 4 days, i.v. (% unspecified) | Recovered, then died of sepsis | 1984140 |
| Cr↑, Na+↓, K+↑ | 23 yo F, cerebral edema | Mannitol 1095 g\*, i.v. (% unspecified) | Brain death due to initial disease  | 1985141 |
| Oliguria, Cr↑, BUN↑, Na+↓, serum glucose↑ | 37 yo M, glaucoma | Mannitol 400 g, i.v. (% unspecified) | Recovered  | 1987142 |
| Cr↑, anuria, Na+↓ | 50 yo F, intracranial hemorrhage | Mannitol 200 g, i.v. (% unspecified) | Recovered  | 1989143 |
| Oliguria, Cr↑, BUN↑, Na+↓, K+↑ | 70 yo M, glaucoma | 20% mannitol 1000 g\*, i.v. | Recovered  | 1989144 |
| Na+↓, serum glucose↑ | 19 yo M, polytrauma  | 10% mannitol 4000 ml\*, i.v. during transport | Recovered  | 1989145 |
| Oliguria, Cr↑, BUN↑, Na+↓, K+↑ | 62 ± 15 yo, female; n = 3, 7 cardiovascular accident and 1 head trauma | Mannitol 626 ± 270 ml, i.v. (% unspecified) | 6 recovered, 2 died  | 1990146 |
| Kidney graft rupture | 32 yo M, oliguria after kidney transplantation | 20% mannitol 600 ml, i.v. | Successfully repaired | 1992147 |
| Oliguria, hyponatremia | 80 yo F, intracranial hypertension | 20% mannitol 300 ml, i.v. | Recovered  | 1993148 |
| Oliguria, hyponatremia  | 61 yo F, intracranial hypertension | 20% mannitol 300 ml, i.v. | Recovered  | 1993148 |
| Cr↑, Na+↓, K+↑ | 31 yo F, cerebral edema | Mannitol 550 g, i.v. (% unspecified) | Died of ileus  | 1993149 |
| Cr↑, anuria  | 71 yo M, renal failure  | Mannitol 400 g, i.v. (% unspecified) | Recovered  | 1994150 |
| Oliguria, Cr↑, BUN↑, Na+↓, K+↑ | 85 yo M, intracranial hemorrhage | 20% mannitol 300 ml, i.v. | Recovered  | 1995151 |
| Oliguric, Cr↑, BUN↑, Na+↓, K+↑ | 89 yo M, ischemic stroke | 20% mannitol 300 ml, i.v. | Recovered | 1995152 |
| Oliguric, Cr↑, BUN↑, Na+↓ | 16 yo M, intracranial hematoma | 20% mannitol, 30-120 g, i.v.  | Recovered  | 1995152 |
| Oliguric, Cr↑, BUN↑, Na+↓, K+↑ | 89 yo M, ischemic stroke | Mannitol 15-60 g, i.v. (% unspecified) | Died of fungemia  | 1995151 |
| BUN↑, Cr↑  | 50 yo M, cerebral edema | Mannitol 600 g\*, i.v. (% unspecified) | Recovered  | 1995153 |
| Cr↑, BUN↑, Na+↓ | 76 yo F, glaucoma | Mannitol 1600 g\*, i.v. (% unspecified) | Recovered | 1995154 |
| Cr↑, BUN↑, Na+↓, K+↑ | 75 yo M, cerebral edema | 20% mannitol 100 ml, i.v. | Died | 1996155 |
| Oliguria, Cr↑, BUN↑ | 49 yo M, glaucoma | Mannitol 360 g, i.v. (% unspecified) | Recovered  | 1996156 |
| Oliguric, Cr↑, BUN↑ | 71 yo F, reflex sympathetic dystrophy syndrome with left kidney agenesis | 10% mannitol 1000 ml, i.v.  | Recovered | 1997157 |
| Cr↑, Na+↓ | 68 yo M, kidney transplantation | Mannitol 236 g, i.v. (% unspecified) | Recovered | 1997158 |
| Oliguria, Cr↑, BUN↑, Na+↓, K+↑  | 67 yo M, cerebral edema | 20% mannitol 30 ml/h, i.v. | Recovered  | 2000159 |
| Cr↑, BUN↑, Na+↓ | 53 yo M, hemorrhagic glaucoma | Mannitol 420 g, i.v. (% unspecified) | Recovered  | 2001160 |
| Oliguric, Cr↑, BUN↑, Na+↓, K+↑ | 53 yo M, hemorrhagic glaucoma with diabetic nephropathy | Mannitol 420 g, i.v. (% unspecified) | Recovered  | 2001160 |
| Cr↑, Na+↓ | 42 yo F, cisplatin nephrotoxicity | Mannitol 1172 ± 439 g\* over 58 ± 28 hours, i.v. (% unspecified) | Recovered | 2002161 |
| 26 yo F, cerebral edema | Recovered | 2002161 |
| 28 yo F, cerebral edema | Died due to primary disease | 2002161 |
| 20 yo F, cerebral edema | Died due to primary disease | 2002161 |
| Cr↑, BUN↑, Na+↓, K+↑ | 62 yo M, ocular trauma | 20% mannitol 4300 ml\* over 3 days, i.v.  | Recovered  | 2010162 |
| Anuria, Cr↑, BUN↑, Na+↓, K+↑, pH↓, hyperglycemia | 16 yo F, diabetic ketoacidosis | Mannitol 70 g, i.v. (% unspecified) | Recovered  | 2015163 |
| ***Cerebral complications*** |
| Frontal hematoma | 43 yo M, TBI | 25% mannitol 100 ml, i.v. | Unclear  | 1983164 |
| Rebleeding | 64 yo F, SAH | Mannitol 50 g, i.v. (% unspecified) | Died  | 1983165 |
| Brain expansion | 61 yo M, cerebral aneurysm | 20% mannitol 50 ml, i.v. | Recovered  | 1996166  |
| Leak into the peritumoral edematous region causing rebound increases in ICP | 73 yo M, large meningioma  | 20% mannitol 25 g, i.v. | Recovered  | 2008167 |
| ***Cardiac complications*** |
| Cardiac arrest | 10 yo M, glaucoma | 20% mannitol 450 ml, i.v. | Recovered  | 1978168 |
| Chest pain | 74 yo F, glaucoma | 20% mannitol 500 ml, i.v.  | Recovered  | 1978168 |
| Cardiopulmonary arrest, pulmonary embolism | 32 yo F, oliguria | 25% mannitol 12.5 g, i.v. | Survived | 1980169 |
| Anaphylactoid reaction, hypotension, cardiac arrest | 39 yo M, maxillary tumor resection | 20% mannitol, i.v. (dose unspecified) | Recovered | 1992170 |
| Bundle branch block, hyperkalemia | 59 yo M, facial fracture with eye injury | Mannitol (% and dose unspecified) | Recovered  | 2006171 |
| ***Gastrointestinal complications*** |
| Colonic explosion | 69 yo M, colonoscopic polypectomy | Mannitol 40 g, p.o. (% unspecified) | Died | 1979172 |
| Colonic explosion | 76 yo F, rectal surgery | 10% mannitol 2000 ml, p.o. | Unclear  | 1982173 |
| Colonic explosion | 75 yo F, operative endoscopy  | 20% mannitol, p.o. (dose unspecified) | Recovered  | 1982174 |
| Intestinal gas explosion  | 70 yo F, partial colectomy | Mannitol, p. o. (% and dose unspecified) | Survived  | 1983175 |
| Intestinal gas explosion | 57 yo M, total colectomy | 10% mannitol 2000ml, p. o.  | Survived  | 1983175 |
| Intestinal gas explosion | 51 yo M, carcinologic surgery | Mannitol, p.o. (% and dose unspecified) | Survived | 2003 176 |
| ***Miscellaneous*** |
| Hypertension, hyperventilation, hyperkalemia, oliguria | 39 yo M, renal calculus | 20% mannitol 1100 g, i.v. | Recovered  | 1983177 |
| Hypotension  | 35 yo F, craniotomy for meningioma resection | 20% mannitol 1 g/kg, i.v. | Recovered | 1985178 |
| 26 yo F, craniotomy for aneurysm clipping |
| 35 yo F, intracranial aneurysm |
| 60 yo M, craniotomy for meningioma resection |
| 57 yo F, craniotomy for meningioma resection |
| 61 yo F, craniotomy for intracranial aneurysm |
| Mannitol crystals  | 73 yo M, craniotomy for tumor resection | 20% mannitol, i.v. (dose unspecified) | Uneventful  | 1990179 |
| Subcutaneous swelling and bullous eruption | 68 yo F, cerebral edema with obstructive hydrocephalus | 20% mannitol 75 ml, i.v. | Recovered  | 2001180 |
| Forearm Compartment Syndrome | 49 yo F, intracranial aneurysm clipping | Mannitol 5 g/min, i.v. (% unspecified) | Recovered | 2002181 |
| Forearm Compartment Syndrome | 36 yo F, partial nephrectomy  | Mannitol 12.5 g, i.v. (% unspecified) | Recovered  | 2007182 |
| Blanched skin and Subcutaneous edema | 73 yo M,intracerebral hemorrhage | Mannitol i.v. (% and dose unspecified) | Recovered  | 2013183 |
| Tachycardia, facial flushing, breathless, cough, maculopapular rash, and altered consciousness | 19 yo M, brain tumor receiving cisplatin treatment | 20%mannitol 8-42g/m2, i.v.  | Recovered  | 2013184 |

­­­\*total amount of mannitol administration in several days.

yom = year old male; yof = year old female; i.v. = intravenous; p.o. = oral; BUN = blood urea nitrogen; Cr = creatinine; AVM = arteriovenous malformation; ↑ = increase; ↓ = decrease; CABG = coronary artery bypass grafting; VAR = ventricular aneurysm resection; CPB = cardiopulmonary bypass; TURP = transurethral resection of the prostate; SAH = subarachnoid hemorrhage; Na+ = sodium; K+ = potassium, TBI = traumatic brain injury; ICP = intracranial pressure