CISplatin

Brand names	Platinol, generic
Medication error potential	ISMP high-alert medication that has an increased risk of causing significant patient harm if it is used in error.[1] Look-alike, sound-alike drug names ISMP and USP report that CISplatin has been confused with CARBOplatin; patient harm resulted.[2,3] USP reports that CISplatin has been confused with Cytoxan; no patient harm resulted.[3] ISMP reports that Platinol has been confused with Patanol.[2] USP also reports that Platinol has been confused with Plaquenil; no patient harm resulted.[3]
Contraindications and warnings	**U.S. boxed warning:** Cisplatin should be administered under the supervision of a qualified physician. Use caution to prevent inadvertent overdose. (See the Maximum Dosage section.) Cisplatin is associated with severe renal toxicity. Also associated with other serious dose-related toxicities such as myelosuppression, nausea, and vomiting. Cisplatin can cause ototoxicity that is more pronounced in children. Cisplatin has been associated with serious anaphylactic-like reactions.[4,5] (See the Infusion-Related Cautions section.) **Contraindications:** Cisplatin should not be used in patients with preexisting renal impairment, myelosuppression, or hearing impairment. Should also not be used in patients with known history of hypersensitivity to cisplatin or any components.[4,5] **Other warnings:** Occasionally, fatal dosing errors have occurred when cisplatin has been inadvertently substituted for carboplatin. Can cause serious acute leukemia and neuropathies.[4,5]
Infusion-related cautions	Anaphylactic-like reactions, including facial edema, bronchoconstriction, tachycardia, and hypotension, may occur within minutes of administration. Epinephrine, corticosteroids, and antihistamines have been used.[4] Because extravasation may cause tissue sloughing and necrosis, the infusion should be stopped if the patient complains of discomfort.[5,6] If extravasation occurs, attempt to remove any residual drug from tissues. Because of extravasation and infiltration risk, small veins in the dorsum of the hand or foot and scalp veins should be avoided if at all possible. Severity of tissue damage appears to occur more often when concentration of solution is >0.5 mg/mL.[5] (See Appendix E for additional information regarding extravasation treatment.)
Dosage	Consult individual protocols for complete dosing information. Cisplatin should be administered with a regimen of hydration with or without mannitol and/or furosemide. (See the Comments section.) Should not be given to patients with preexisting renal or hearing impairment or myelosuppression. *Verify any dose exceeding 100 mg/m^2 per cycle, to prevent possible overdose.* **The following dosing regimens have been used in pediatric patients** **Intermittent dosing:** 37–75 mg/m^2 q 2–3 wk or 50–100 mg/m^2 q 3–4 wk[4,5] **Daily dosing:** 15–20 mg/m^2/day for 5 days q 3–4 wk[4,5,7,8] **Germ cell tumors (combination therapy):** 20 mg/m^2/day on days 1–5 or 100 mg/m^2 on day 1 of a 21-day treatment cycle[9] **Hepatoblastoma (combination therapy):** 80 mg/m^2 continuous infusion over 24 hours on day 1 of a 21 day treatment cycle[10] **Hepatoblastoma (monotherapy):** 80 mg/m^2/day continuous infusion over 24 hours every 2 weeks on day 1.[10] **Meduloblastoma (combination therapy):** 75 mg/m^2 on day 0, or day 1 of regimen[11]

Dosage *(cont.)*	**Neuroblastoma (combination therapy):** 60–100 mg/m^2 once q 3–4 wk[4,12,13] or 50 mg/m^2 on days 0–3 of a 21-day cycle (cycles 3 and 5)[14] **Osteogenic sarcoma:** 60 mg/m^2 for 2 days on weeks 2, 7, 25, and 28 (neoadjuvant) or weeks 5, 10, 25, and 28 (adjuvant) in combination with doxorubicin.[5,15] May alternatively use 120 mg/m^2/day at weeks 0, 5, 12, and 17 in combination with doxorubicin.[29] A repeat course should not be given until the patient's renal, hematologic, and otic functions are within acceptable limits.[4]
Dosage adjustment in organ dysfunction	The manufacturer states that cisplatin is contraindicated in patients with preexisting renal dysfunction.[4] The manufacturer also recommends that repeat dosages be held until SCr <1.5 mg/dL, WBC count ≥4000/mm^3, platelets ≥100,000/mm^3, and BUN <25.[4] Decrease dosage in infants <6 months of age due to decreased renal tubular secretion and decreased renal function.[5] **CrCl 10–50 mL/min:** Administer 75% of dose.[16] **CrCl <10 mL/min:** Administer 50% of dose.[16] **Hemodialysis:** Partially cleared. Administer 50% of dose posthemodialysis.[16] **Continuous ambulatory peritoneal dialysis (CAPD):** Administer 50% of dose.[16] **Continuous renal replacement therapy (CRRT)**: Administer 75% of dose.[16]
Maximum dosage	It is important to differentiate between daily doses and total dose per cycle or course of treatment. Verify any cisplatin dose exceeding 100 mg/m^2 per course.[4] Doses >100 mg/m^2 per course q 3–4 wk are rarely used.[4]
Additives	None
Suitable diluents	D5¼NS, D5½NS, D5NS, ¼NS, ⅓NS, ½NS, NS[5,17]
Maximum concentration	Not established
Preparation and delivery	**Preparation:** Skin reactions may occur following exposure; therefore, wear gloves when preparing and administering.[4] If exposure occurs, wash area with soap and water. Needles, syringes, catheters, or IV administration sets that contain aluminum parts that may come in contact with cisplatin should not be used for preparation or administration of the drug, because this may result in precipitate formation.[4,17] **Stability:** Do not infuse in solutions containing <¼NS; stable when combined with mannitol (12.5–50 g mannitol/L).[5] **Compatibility:** Incompatible with sodium bicarbonate and variable stability in D5W.[17] For PN compatibility information, please see Appendix D.
IV push	Although rapid administration over 1–5 minutes has been used, it is associated with an increased risk of ototoxicity and nephrotoxicity.[5]
Intermittent infusion	Concentration not specified. Diluted in compatible fluid, it has been given over 15–20 minutes without adverse effects.[5-15]