Acyclovir Sodium

Brand names	Generic
Medication error potential	ISMP reports that Zovirax has been confused with Doribax, Zyvox, and Zostrix.[1]
Contraindications and warnings	**Contraindications:** Hypersensitivity to acyclovir or valacyclovir[2] **Warnings:** Renal failure and thrombotic thrombocytopenic purpura (TTP)/hemolytic uremic syndrome (HUS) have both been reported with acyclovir. Deaths have occurred due to renal failure and TTP/HUS. Caution should be used in patients with underlying neurological abnormalities, as well as those with serious renal, hepatic, or electrolyte abnormalities or significant hypoxia.[2]
Infusion-related cautions	To decrease the risk of nephrotoxicity, the patient should be adequately hydrated before and during the infusion.[2,3] Extravasation may cause inflammation and phlebitis at the injection site particularly at higher concentrations.[2,4] (See Appendix E for additional information regarding extravasation treatment.)
Dosage	Doses generally range from 15–60 mg/kg/day or 1500 mg/m^2/day divided q 8 hr depending on the infection.[2,5-12] Obese patients should be dosed using ideal body weight.[2] **Herpes simplex virus (HSV)** **Neonatal HSV:** Although product information continues to recommend 30 mg/kg/day divided q 8 hr for 10 days, 60 mg/kg/day divided q 8 hr for 14–21 days is currently recommended by most experts with duration based on severity of illness.[2,11,12,26] **HSV encephalitis** **≥3 months–12 years:** 60 mg/kg/day divided q 8 hr for 10–21 days[2,24]; some experts recommend 30–45 mg/kg/day divided q 8 hr for 14–21 days due to concern for nephrotoxicity with larger doses.[11] **≥12 years:** 30 mg/kg/day divided q 8 hr for 10–21 days[2,11] **Genital HSV (first episode), ≥12 years:** 15 mg/kg/day divided q 8 hr for 5–7 days[2,11] **HSV in immunocompromised host (localized, progressive, or disseminated):** 30 mg/kg/day divided q 8 hr for 7–14 days[11] **Prophylaxis in HSV-seropositive immunocompromised hosts:** 15 mg/kg/day divided q 8 hr during risk period[11] **Varicella** **Immunocompetent hosts >2 years:** 30 mg/kg/day divided q 8 hr or 1500 mg/m^2/day divided q 8 hr for 7–10 days[11] **Immunocompromised hosts** **<12 years:** 60 mg/kg/day divided q 8 hr for 7 days[2] **>12 years:** 30 mg/kg/day divided q 8 hr for 7 days[2] **or** **<1 year:** 30 mg/kg/day divided q 8 hr for 7–10 days[11] **≥1 year:** 1500 mg/m^2/day (or 30 mg/kg/day) divided q 8 hr for 7–10 days[8,10,11] Initiate therapy as soon as possible after rash appears. Early initiation therapy is associated with more rapid improvement and less dissemination than late initiation therapy (>3–5 days).[9]

Acyclovir Sodium

Dosage *(cont.)*

IV therapy is recommended for the duration of treatment in immunocompromised hosts.[11]

Sixty-six pediatric renal transplant recipients with VZV were given 1500 mg/m^2/day divided q 8 hr. Azathioprine was temporarily discontinued until the lesions crusted over and no new lesions appeared; at that time, azathioprine was restarted at the usual dose. Three recipients experienced acute rejection that responded to prednisone. One patient died.[13]

Zoster in immunocompetent or compromised host, all ages: 30 mg/kg/day divided q 8 hr for 7–10 days[11]

Prevention or suppression of cytomegalovirus infection in allogeneic bone marrow transplant recipients (this use has largely been replaced by ganciclovir): 1500 mg/m^2/day divided q 8 hr beginning 5 days before transplantation and continuing 30 days after[7,14]

Aplastic anemia (use not established): 15 mg/kg/day (schedule not provided) for 10 days has been given to two patients (one, a 13-year-old girl) who had severe, possibly viral related, aplastic anemia refractory to standard treatment.[5]

Dosage adjustment in organ dysfunction

Adjust dosage in patients with renal dysfunction.[2,11,15,16] If CrCl is 25–50 mL/min, give normal dose q 12 hr; if CrCl is 10–25 mL/min, give normal dose q 24 hr, and if CrCl is <10 mL/min, give 50% of the dose q 24 hr.[2]

Another source recommends the following dose adjustment based on GFR[16]:

GFR (mL/min/1.73 m^2)	Dose
30–50	10 mg/kg q 12 hr
10–29	10 mg/kg q 24 hr
<10	5 mg/kg q 24 hr

Neonates with hepatic or renal dysfunction and young premature infants may also require dose adjustment.[15]

Maximum dosage

Do not exceed 20 mg/kg q 8 hr.[2]

An 11-day-old neonate has received 258 mg/kg of IV acyclovir in a 24-hour period that was treated with NS hydration; the patient experienced only a transient increase in SCr.[17]

Additives

Aqueous solution contains 5.1 mg/mL sodium.[3] Lyophilized powder contains 49 mg sodium/500 mg acyclovir.[24]

Suitable diluents

D5W, NS, D5NS, LR[18]

Maximum concentration

≤7 mg/mL.[2,18] Infusion of a solution ≥10 mg/mL increases the risk of phlebitis and extravasation.[2,19]

Preparation and delivery

Stability: Vials should be reconstituted with SW for injection and should be used within 12 hours.[24] Once diluted for administration, doses should be used within 24 hours.[2,18] Refrigeration may cause precipitation; however, the precipitate redissolves at room temperature and potency does not appear to be affected.[18,24] BW for injection containing parabens or benzyl alcohol should not be used to dilute acyclovir sodium powder because precipitation could occur.[18,24]

Compatibility: For PN compatibility information, see Appendix D.