

Newborn Critical Care Center (NCCC) Clinical Guidelines

Alprostadil (Prostin) Administration for Congenital Heart Disease (CHD)

INTRODUCTION

Alprostadil is used to promote dilation of the ductus arteriosus (PDA) in infants with congenital heart disease dependent on ductal shunting for oxygenation/perfusion. Apnea has been reported in 10 to 12% of neonates with congenital heart defects treated with alprostadil and is dose dependent. The majority of pre-operative mechanical ventilation for CHD patients is associated with apnea from alprostadil administration. Apnea is seen most often in neonates weighing less than 2 kilograms at birth, and usually appears during the first hour of drug administration. Infants receiving alprostadil may respond to low flow or high flow nasal cannula as a stimulant if apnea associated with alprostadil administration is present. It is optimal in patients with CHD to prevent intubation for apnea associated with alprostadil whenever possible.

INDICATIONS TO START ALPROSTADIL

1. Any infant born with a known or suspected ductal dependent congenital cardiac lesion
2. PPHN - to assist with right heart function for infants with inadequate blood pressure

DRUG INFORMATION

- Concentration 10 mcg/mL – mix one ampule of alprostadil (500 mcg) in 49 mL of a compatible solution
- [Drug compatibility information](#)
- Start continuous IV infusion at 0.025 mcg/kg/min continuous IV and wean as tolerated. (Dose may be as low as 0.01 mcg/kg/min.) If desired saturation goals are not met on the starting dose of alprostadil increase to 0.05 mcg/kg/min.
- A compatible carrier fluid (D5W or normal saline) will need to be ordered to infuse with the medication.
- Ensure reliable IV access due to short duration of action. Alprostadil infusion requires dedicated IV access, therefore a secondary saline locked PIV site should be established.
- If apnea is noted consider LFNC @ 0.2LPM or HFNC @ 1 LPM, FiO2 0.21 for stimulation.
- Closely monitor respiratory and cardiovascular status. Assess for achievement of desired saturation goals and adequate PaO2.

ADVERSE EFFECTS

- **Common (6% to 15%):** *Apnea*, hypotension, *fever*, leukocytosis, *cutaneous flushing*, and bradycardia. Hypokalemia (with treatment > 20 days). Gastric outlet obstruction and reversible cortical proliferation of the long bones after prolonged treatment (> 5 days).
- **Uncommon (1% to 5%):** Seizures, hypoventilation, tachycardia, cardiac arrest, edema, sepsis, diarrhea, and disseminated intravascular coagulation.
- **Rare (less than 1%):** Urticaria, bronchospasm, hemorrhage, hypoglycemia, and hypocalcemia.