

Management of Congenital Diaphragmatic Hernia (CDH) – Neonatal – Inpatient - Guideline Summary

Target Population: Neonatal patients with congenital diaphragmatic hernia

Link to Full Guideline: [Management of Congenital Diaphragmatic Hernia \(CDH\) - Neonatal - Inpatient](#)

Analgesia and Sedation

- Analgesia and sedation should be provided and monitored with validated scales (SBS or N-PASS)
 - Initiate dexmedetomidine first line (starting dose 0.2-0.3 mcg/kg/hr)
 - Use morphine as needed for additional analgesia (starting dose 0.01-0.02 mg/kg/hr), with goal of using the minimal necessary dose
 - Midazolam can be considered for additional sedation if clinically necessary (after optimizing other agents)
- Paralysis and deep sedation should generally be avoided; may consider for patients requiring maximal respiratory support
 - Deep sedation using midazolam and morphine is required when administering paralysis

Pulmonary Hypertension Management Considerations

- Acute PHTN treatment is recommended if ≥ 1 of the following:
 - Pre-ductal SpO₂ < 90% despite ventilatory optimization
 - Oxygenation index (OI) > 25
 - Post-ductal sats < 70% and/or evidence of end organ dysfunction
 - Echo with systemic or near-systemic right-sided pressures and depressed RV function or if evidence of supra-systemic to near-systemic right-sided pressures with borderline oxygenation.
- A trial of iNO should be initiated as the 1st line treatment for confirmed PHTN; have caution if significant LV dysfunction
- Prostaglandins may be useful in the specific circumstances
 - See [full guideline](#) for detailed considerations
- Sildenafil may be considered in refractory PHTN (typically late or subacute phase) or if longer-term treatment is necessary

Hemodynamic Management Considerations

- For hypovolemia, use isotonic crystalloids judiciously
- For hypotension, consider the following to increase SVR and BP in the setting of high PVR and good RV function:
 - Norepinephrine (dosing range 0.05-1.0 mcg/kg/min)
 - Epinephrine (dosing range 0.01-0.1 mcg/kg/min)
 - Vasopressin (dosing range 0.17-10 milliUnits/kg/min)
 - Dopamine may worsen PHTN and should be considered with caution (dosing range 5-25 mcg/kg/min)
- For RV dysfunction associated with PHTN, milrinone is the preferred 1st line agent
- For ventricular dysfunction, dobutamine (dosing range 5-20 mcg/kg/min) is an additional therapeutic option
- Consider hydrocortisone (1 mg/kg Q8 hrs) to address adrenal insufficiency and hypotension

ECMO Considerations

- There are no specific criteria for ECMO, the indications and contraindications below may be used to determine eligibility.
- If baby is meeting criteria for ECMO, early discussion with NICU, PICU and pediatric surgery attendings should occur.
- Echo and Cranial US are necessary for evaluation, but their completion should not delay transfer

Criteria for ECMO Consideration	Absolute Contraindications	Relative Contraindications
<ul style="list-style-type: none"> • Prenatal indicators for \uparrow likelihood of ECMO need: <ul style="list-style-type: none"> ○ O/E TFLV < 25% or PPLV < 15% ○ O/E LHR < 25% ○ liver up • Postnatal indicators prompting ECMO consideration when sustained and refractory to treatment: <ul style="list-style-type: none"> ○ Preductal SaO₂ < 85% ○ PaCO₂ > 70 and/or pH < 7.20 ○ OI > 40 [OI = (FiO₂ × M_{PAW}) / PaO₂] ○ PIP > 30 or HFOV AMP > 45 ○ lactate > 4 mmol/L ○ Circulatory failure <ul style="list-style-type: none"> ▪ Severe hypotension ▪ LV failure ▪ Severe PHTN resulting in RV failure 	<ul style="list-style-type: none"> • Gestational age < 32 weeks • Birth weight < 1.6 kg • Lethal comorbidity (Pentalogy of Cantrell, Frynn's syndrome, Bilateral defects) • IVH \geq grade 3 	<ul style="list-style-type: none"> • Gestational age 32-34 weeks • Birth weight < 2 kg • IVH grade 2 • Cardiac lesion (coarctation)** • Failure to achieve SaO₂ > 85% (and sustain for 1 hour) within the first 2-4 hours of life despite maximal ventilatory maneuvers

Surgical Repair Considerations

The timing and approach to surgical repair should be individualized. Infants should generally undergo repair following clinical stabilization – consider the following physiologic criteria when evaluating stability: OI < 9, urine output > 1 mL/kg, FiO₂ < 0.5, preductal sats 85-95%, normal MAP for gestational age, lactate < 3 mmol/L, and estimated PA pressures < systemic pressure.

Ventilator Management and Related Care Measures for Infants with CDH

