

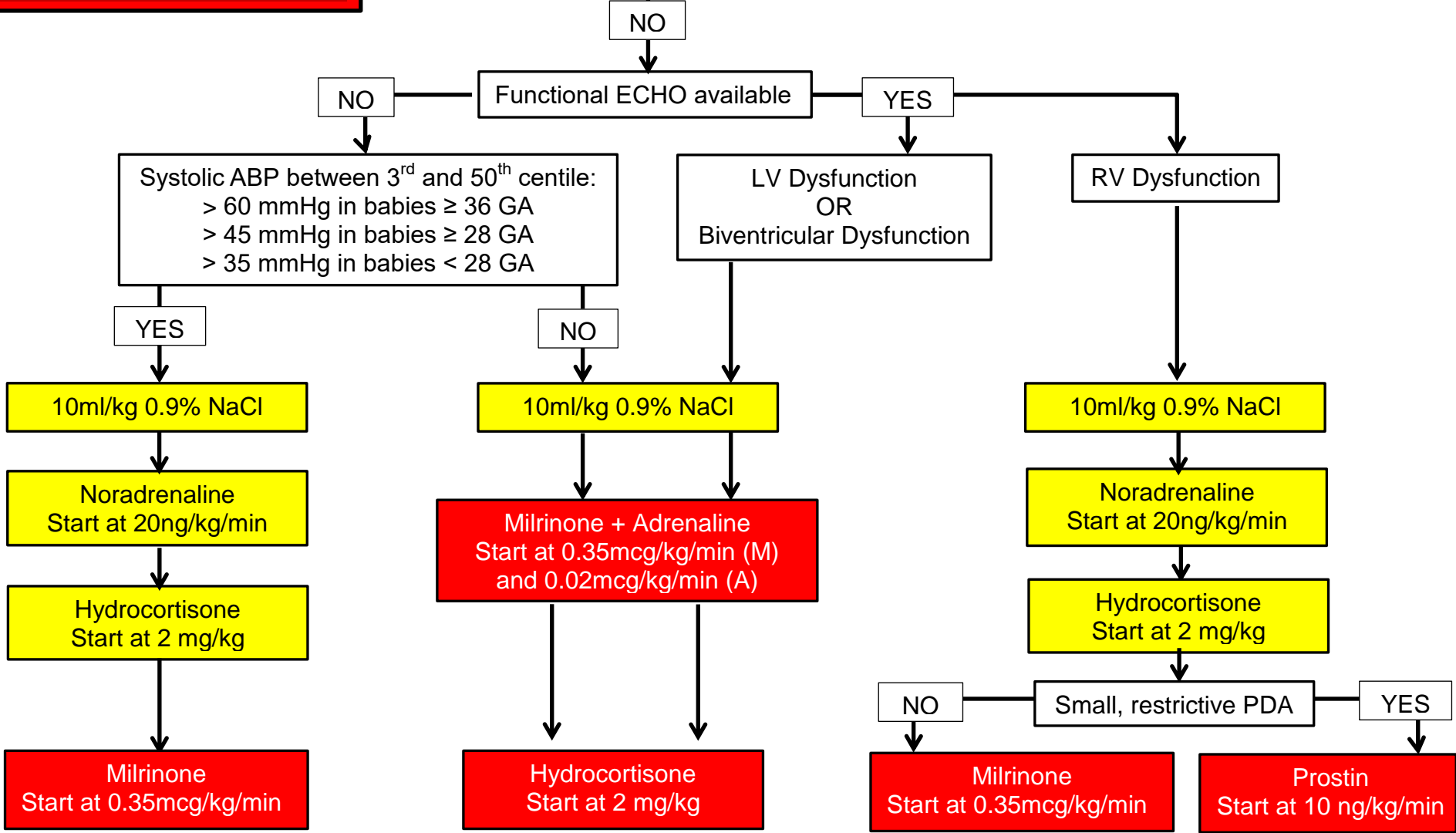
# ACUTE PERSISTENT PULMONARY HYPERTENSION

**Rescue Treatment for INO Refractory PPHN**

1. Add Inhaled Prostacyclin to INO OR Sildenafil
2. Consider stopping Noradrenaline and starting Vasopressin 0.0001 – 0.002units/kg/min - if no LV dysfunction

Responsive to INO  
**AND**  
Systolic ABP above 50<sup>th</sup> centile:  
> 70 mmHg in babies ≥ 36 GA  
> 65 mmHg in babies ≥ 28 GA  
> 55 mmHg in babies < 28 GA

Continue INO  
No further intervention



## INITIAL MANAGEMENT

### General Management:

- Minimal handling
- Maintain normal temperature
- Sedate with morphine/fentanyl
- Consider paralysis with vecuronium
- Correct blood glucose, calcium, magnesium and haematocrit
- Septic screen and start first line antibiotics

### Ventilation and Oxygenation:

- Pre-ductal O<sub>2</sub> saturation > 90% in preterm and > 94% in term babies
- Post-ductal O<sub>2</sub> saturation > 85 % in all
- Aim for pH 7.35-7.45, pCO<sub>2</sub> 4.5 - 6kPa and pO<sub>2</sub> > 8kPa
- Adjust PIP and PEEP for lung inflation 8-9<sup>th</sup> posterior ribs on X-ray
- Avoid hyperinflation
- If PiP > 30 cm consider HFOV
- Consider Surfactant for MAS and RDS

### Cardiovascular:

- Obtain arterial and central venous access
- Monitor blood pressure continuously
- Avoid systemic arterial hypotension

## INHALED NITRIC OXIDE

### Start INO at 20 ppm when:

- OI > 15 (with ECHO evidence)
- OR
- OI > 20 (without ECHO evidence)

### Check response after 30 – 60 min

### Responders will have:

- Reduction in pre-post ductal difference
- Rise in pO<sub>2</sub> > 3 kPa
- Reduction in FiO<sub>2</sub> > 0.1

### Monitor:

- NO<sub>2</sub> Levels; if > 1ppm, reduce INO
- Methaemoglobin; if > 4% reduce INO
- PLT count
- CUSS before starting and 24 - 48 h after starting INO

### Start weaning, if:

- FiO<sub>2</sub> < 0.6 for at least 1 h

## ONGOING MANAGEMENT

### Reduce INO by 10% 1 hrly until:

- Pre-ductal O<sub>2</sub> saturation drops > 5%
- OR
- pO<sub>2</sub> drops below 8 kPa

### Once OI is 10 - Reduce INO by 5 ppm 2 hrly

### Once INO is 5ppm - Reduce INO by 1 ppm 4 hrly

### Stop INO at a dose of 1 ppm:

- Increase the FiO<sub>2</sub> by at least 0.2 before stopping

**If there is deterioration at any point, increase INO back to the previous effective dose and maintain the dose for 8 h**

**Follow cardiovascular support guidance**

**Consider ECMO if OI > 30**

## ECHOCARDIOGRAPHY (Exclude CHD - think TAPVD and PV obstruction)

PPHN likely present when:

### Qualitative:

- R>L shunt through PFO/PDA
- IVS bowing to the left
- Dilated IVC, RA and RV

### Quantitative:

- TVR Vmax > 2.8m/s
- PAAT / RVET ratio < 0.3

Cardiac dysfunction likely, when:

### Poor RV function:

- TAPSE < 5mm
- RVCO < 100 ml/kg/min

### Poor LV function

- FS < 25%
- LVCO < 100 ml/kg/min

