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Respiratory Distress in the Newborn

Standard Operating Procedure (SOP)



Union of Myanmar Special region - 1
Pediatric (SOP)

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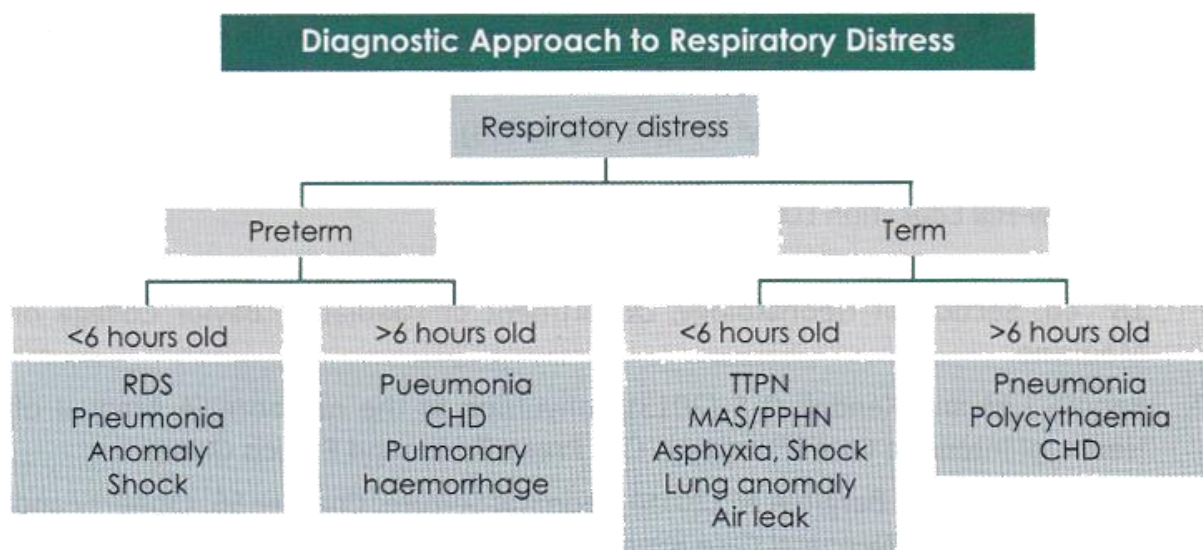
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Union of Myanmar Special region - 1
Pediatric (SOP)

Respiratory Distress in the Newborn

Respiratory distress may be characterized by the followings:

- Tachypnoea-more than 60 breaths/minute
- Expiratory grunt
- Sternal and intercostal recession
- Nasal flaring
- Cyanosis/oxygen need



RDS-Respiratory distress syndrome, CHD-Congenital heart disease, TTPN-Transient tachypnoea of newborn, MAS-Meconium aspiration syndrome, PPHN-Persistent pulmonary hypertension of newborn

Management

Investigations - depending on cause of respiratory distress and on available facilities

- Blood glucose - to exclude hypoglycaemia
- Arterial blood gases - is essential to determine the degree of respiratory failure and decision on the next most appropriate interventions to be made
- Chest radiograph
- Full septic screen -if there is a high suspicion of sepsis
- ECG and echocardiogram for suspected congenital heart disease

Treatment

Supportive therapy is most crucial in all neonates with respiratory distress and the same principles apply whatever the cause, The following basic principles should be observed

1. *Checking the baselines*

- Temperature 4 hourly
- Pulse/ BP hourly
- Glucose 4-6 hourly
- Respiratory rate hourly
- Monitor oxygen saturation continuously with pulse oximetry

Guidelines for monitoring oxygen saturation levels by pulse oximetry

- >95% Term baby, pulmonary hypertension (PPHN)
- 88-94% 28-34 weeks preterm
- 85-92% Below 28 weeks gestational age

2. *Blood culture*

- Collect blood for blood culture and full blood count if sepsis is suspected
- Collect surface swabs if clinically indicated

3. *Fluids*

- Insert intravenous (IV) cannula and commence fluids 60 ml/kg/day of 10% dextrose
- Consider an umbilical venous catheter (UVC) if peripheral cannulation is difficult
- Enteral feedings is to be started when there is no tachypnoea, presence of bowel sounds with non-distended abdomen and no clinical evidence of NEC

4. *Antibiotics*

- May start giving antibiotics if infective causes cannot be excluded (e.g. IV Ampicillin + Gentamicin)

5. *Blood glucose level*

- Measure blood glucose at 1, 2 and 4 hours of age (or hourly until normalized) and then 4 hourly for 24 hours until stable at more than 2.6 mmol/L

6. *Maintain temperature within the normal range:*

- Axillary temperature should be between 36.5-37.5°C
- Disturb neonate only when absolutely necessary ("Minimal handling")
- Adjust the environmental temperature (Room temperature around 25°-28°C)

- Maintain humidity around 65 %-75 %

7. Respiratory support

- Supplemental O₂
- Continuous positive airway pressure (CPAP)
- Mechanical ventilation

Neonates who cannot be oxygenated by any of these means may require a full cardiac evaluation to exclude congenital heart disease

Oxygen: O₂, may be given using a nasal cannula, facemask or O₂ hood, with O₂ concentration set to achieve a desired level. (See Table 1.5)

No matter how O₂ is delivered, it should be warmed (36 to 37°C) and humidified to prevent secretions from cooling and drying and to prevent bronchospasm.

Very low-birth-weight infants may benefit from the addition of a methylxanthine (e.g. aminophylline).

Delivery Room Management of Babies Born through the Meconium-Stained Amniotic Fluid

The presence of meconium-stained amniotic fluid may indicate fetal distress and increases the risk that the baby will require resuscitation after birth.

Meconium-stained fluid and a vigorous newborn

If the baby is vigorous with good respiratory effort and muscle tone, the baby may need only initial steps of resuscitation. Gently clear meconium-stained secretions from the mouth and nose.

Meconium-stained fluid and a non-vigorous newborn

If the baby is born through meconium-stained amniotic fluid and has depressed respiration or poor muscle tone, the baby is to be brought to the resuscitation area or radiant warmer and initial steps of resuscitation has to be performed first. Gently clear meconium-stained secretions from the mouth and nose. If the baby is not breathing or the heart rate is less than 100 bpm after the initial steps are completed, proceed with PPV.

Routine endotracheal intubation and suction for non-vigorous babies born through meconium-stained amniotic fluid is no longer suggested.

Table 1.5 Methods for Administering O₂

<i>Method</i>	<i>Flow and Concentration</i>	<i>Advantages</i>	<i>Disadvantages</i>
<i>Nasal prongs</i>	<i>Low = 0.5 L/min Moderate = 0.5-1 L/min High = >1 L/min</i>	<i>Low flow of oxygen Required Constant concentration of oxygen if applied correctly</i>	<i>Requires special prongs for use on newborn babies Requires flow-control device that allows low flow Directs cold oxygen into baby's lungs</i>
<i>Nasal catheter</i>	<i>Low = 0.5 L/min Moderate = 0.5-1L/min High = >1 L/min</i>	<i>Low flow of oxygen required Constant concentration of oxygen if applied correctly</i>	<i>Requires flow-control device that allows low flow Directs cold oxygen in to baby's lungs</i>
<i>Head box</i>	<i>Low =1 L/min Moderate = 1-2 L/min High = >2 L/min</i>	<i>Oxygen can be administered quickly Convenient for administering oxygen for short periods of time</i>	<i>Carbon dioxide can accumulate if flow rate is low or mask is small Difficult to feed baby while mask is in place Difficult to keep mask in place</i>
<i>Incubator</i>	<i>If using a head box inside the incubator, see above If connecting oxygen directly to the incubator, follow the manufacturer's instructions</i>	<i>Warms the oxygen</i>	<i>Disadvantages of giving oxygen directly into the incubator: High flow of oxygen required to achieve the desired concentration Difficult to maintain oxygen concentration when incubator portholes are open for care and procedures</i>