SECTION: 2 RESPIRATORY PROBLEMS AND MANAGEMENT

PULMONARY HAEMORRHAGE

This is better termed “haemorrhagic pulmonary oedema” and is dependent on the primary cause. It is a form of fulminant lung oedema with leakage of red cells and capillary filtrate into the lungs. It must be differentiated from occurrence of a small amount of blood being aspirated from the end of an ETT secondary to trauma. It represents the extreme end of the spectrum of pulmonary oedema in the neonate.

ASSOCIATED CLINICAL CONDITIONS

- Severe birth asphyxia.
- Rhesus haemolytic disease with hydrops/near hydrops.
- Left heart failure.
- Congenital heart disease.
- Sepsis.
- Hypothermia.
- Fluid overload.
- Oxygen toxicity.
- Haemostasis failure.
- Any pre-existing lung disease will worsen, as protein-rich fluid in the alveoli will inhibit surfactant function.

CLINICAL PRESENTATION

The commonest clinical presentation is in an infant with severe RDS on IPPV in high oxygen and heart failure secondary to a large pulmonary blood flow from a PDA. It is also associated with surfactant therapy.

SYMPTOMS

- Sudden deterioration.
- Copious bloody secretions from the infant’s airway either up the ETT or from the larynx and mouth if not already intubated.
- Usually there is hypotension.
- The infant may be pale and unresponsive.
- The outcome is dependent on the cause of the oedema. At the time of collapse, infants are susceptible to neurological damage and GMH/IVH. The mortality is significant, can be as high as 50% unless managed well.

INVESTIGATIONS

- Check Hb, coagulation screen
- Check ABG, biochemistry.
- CXR: often shows a white-out.
- Look for sepsis.

MANAGEMENT

1. Maintain blood pressure.
2. Correct acidosis by ventilation or drug therapy.
3. Fluid balance – consider fluid restriction, administer Frusemide 1-1.5 mg/kg
4. Sedate as needed.
5. Use high PEEP – 6-7 cms. (Redistributes lung water back into the interstitial space, improving oxygenation and ventilation-perfusion balance). Consider alternative modes of ventilation; HFOV or HFJV which may enable the use of higher PEEP or MAP.
6. Surfactant – may help to overcome protein inhibition of endogenous surfactant

7. Check for PDA – opening of symptomatic PDA. Consider medical treatment for PDA if neonate not requiring inhaled nitric oxide.
8. Suction – be careful as may aggravate bleed.
9. Manage coagulopathy.
10. Sepsis – use or review antibiotics.

REFERENCES	
National Standards – 1- Care provided by the clinical workforce is guided by current best practice Legislation Related Policies - Nil Other related documents – NCCU Neonatal Medication Protocols	
RESPONSIBILITY	
Policy Sponsor	**Neonatology Clinical Care Unit**
Initial Endorsement	June 2006
Last Reviewed	January 2016
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