PICU OVERVIEW

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Overview

• Ventilation Strategies
• Problems
• Airway & ET tube security
• Alarms & problems
• Sedation & Analgesia
• Fluids
• Care & Family
Paediatric Ventilation Strategies

Pressure controlled ventilation

• Most used method in paediatrics

• 14-18 cm H₂O will achieve a normal tidal volume (normal lungs)

• Tidal volume range similar to adults 6-8mls/kg. Avoid tidal volumes >10mls/kg

• On PICU insp pressure can be up to 24 cm H₂O any higher may indicate significant lung disease
• Pressure >30 cm H₂O = risk of barotrauma consider HFOV

• PEEP always used, start 4-6 cm H₂O can go up to 10
Volume controlled ventilation

• Less commonly used in paediatrics – except when adequate ventilation difficult to achieve

• Use volume of 6 – 8 ml/kg as the tidal volume

• Also measure the minute volume – tidal volume x rate

• Most children will have pressure and a volume cap/alarm set.
Problems?

- ? tube blocked - suction regularly with +/- saline
- ? tube kinked
- ? tube moved proximally increasing the leak
- ? tube moved distally to the carina or down the R main bronchus
- ? Patient fighting ventilator/ splinting chest
- ? Pneumothorax
Pediatric vs Adult
Airway Anatomy
Securing an Endotracheal Tube
Sedation & Analgesia
All ventilated children and infants will need sedation & analgesia

Some will require muscle relaxants, Why?

To provide comfort & tolerance

Analgesia

Fear

Amnesia

Maintain sleep patterns
IVI Agents Used

• Usually Morphine & Midazolam

• Give a bolus to start then titrate to effect.

• Propofol- Not used as infusion for children, may be used for anaesthetic induction

• Others available according to guidelines
Muscle Relaxants

- For intubation
- During stabilisation
- Used for transfer
- Raised ICP
- Always ensure adequate sedation & analgesia
- Refer to guidelines & Embrace drug chart
Fluid Management

- Usually restricted to 80% Maintenance
- Calculated according to child’s weight
- Maintain adequate urine output according to weight
- May need diuretics
Consider The Child

- Communication / reassurance
- Parents
- Comforters
- Warmth
- Nasal ETT
- Toys / music
- Remember simple analgesics e.g Paracetamol
Practical care

• Regular ETT suction
• Keep ETT tapes clean
• Turn regularly – lung drainage and comfort
• Hygiene care
• Hydration/nutrition and fluid balance
• Drugs – sedation, antibiotics, diuretics
• Monitoring and recording
• Family
More Information

Operational Policies & Clinical Guidelines for Referral & Care of Critically ill Children within Yorkshire & Humber
