

TRANSFER GUIDELINES FOR SURGICAL NEWBORNS

I. GENERAL STABILIZATION PROCEDURES

- Stabilise in same way as medical transfers as regards to ABCDE (see Yorkshire Region Pre-Transfer Neonatal Stabilization Guidelines)
- Gastro-Intestinal problems
 - keep nil by mouth
 - indwelling 8F nasogastric or orogastric tube
 - position confirmed by X-ray or acid positive litmus
 - left open, draining the stomach, frequent aspiration if large volumes
 - IV fluid management
 - beware of excessive fluid losses e.g. in gastroschisis, NEC
 - when giving fluid boluses, 4.5% human albumin solution preferable to crystalloid as babies will be losing protein rich fluid from gut
- Drugs
 - Morphine infusion preferred for sedation (or other opiate if Morphine not available)
 - ensure Vitamin K has been given IM or IV prior to transfer in **all** surgical babies
- Parents
 - ensure sample of maternal blood is available for cross matching - EDTA bottle, fully labelled.
 - written consent will be obtained by Consultant Surgeon upon arrival at receiving Hospital - Consent will be taken by telephone in case parents not able to travel to receiving hospital
- Communication
 - 08.00 - 22.00
 - contact Yorkshire Neonatal Cot Bureau to ascertain bed availability
 - if cot available, then discuss case with Surgical SpR/Consultant on call [Consultant Surgeon at receiving hospital *MUST* always be *aware* of transfer]
 - if medical input required, then neonatal SpR doing transfer will get all details by telephone and advice (+ discuss with Neonatologist on call)
 - 22.00 - 08.00
 - as above - however, as Cot Bureau not operational at night, please ring straight to Senior Nurse in charge @ LGI neonatal unit
 - **always** seek advice from Consultant Surgeon/Consultant Neonatologist at receiving end when
 - baby acutely deteriorates prior to transfer
 - bowel perforation on X-ray
- It may not be possible to achieve total stability before transfer in critically ill infants. Resuscitation must take place, but if the baby cannot be stabilised without surgical intervention there may be occasions where it is better to transfer the baby urgently without achieving total stability. This is a difficult judgment and must be discussed with the Cons. Surgeon/Neonatologist at the receiving end.
- During transfer
 - avoid hypothermia in all circumstances - minimum interference reduces temperature stress on infant
 - consider fluid boluses

II. SPECIAL CONDITIONS

OESOPHAGEAL ATRESIA/TRACHEO-OESOPHAGEAL FISTULA

- Use 10 F NG tube or Replogle tube if available
 - in pouch
 - on continuous drainage + aspirate at least every 10 minutes
 - to keep upper pouch empty and prevent overflow or tracheal compression
 - must be done, even if infant does not appear to have excess secretions
 - suction mouth with standard suction catheter if dribbly
- Ventilation
 - transfer as soon as possible to avoid prolonged ventilation prior to surgery
 - avoid ventilation if possible: inspiratory gases take path of least resistance (= through fistula) and may cause significant abdominal distension (or perforation)
 - if ventilation needed: urgent consultation with Consultant Neonatologist/Surgeon on-call
- Start iv Amoxicillin + Gentamicin
- During transfer
 - baby to be nursed prone with head up tilt, as far as practicable
 - try to keep infant contented (crying promotes gastric distension and subsequent regurgitation / aspiration)

ADOMINAL WALL DEFECTS

GASTROSCHISIS/OMPHALOCOELE/ECTOPIC BLADDER

- Exposed viscera
 - cover with plastic/cling-film (does not need to be sterile)
 - contra-indicated: cotton wool and saline soaks
 - exomphalos with intact sac must be handled with extreme care to prevent rupture - avoid pressure and kinking - prevent stool contamination of the defect
- Fluids: see above
 - nil by mouth
 - NG/OG tube, free drainage
 - ensure adequate IV fluids + fluid boluses to give as 4.5% HAS
- Start IV Amoxicillin + Gentamicin + Metronidazole
- During transfer
 - nurse baby on side as this relieves tension on the mesentery
 - close observation of viscera - if circulation appears to be compromised, then reposition viscera in relation to infant (inspect base of viscera mass)
 - consider administration of fluid boluses
 - consider supplementary oxygen
 - regular temperature, pulse, respiration rate & BP monitoring

ABDOMINAL DISTENSION/SUSPECTED BOWEL OBSTRUCTION

- 8-10 F NG/OG tube
 - free drainage + intermittent gastric suction
 - record amount and type of fluid aspirated
 - if aspirates > 20 ml/kg: replace with normal saline and Potassium (20mmol/500mls saline)
- IV fluids, and correction of shock
- AP and lateral shoot-through X-rays (lateral only if perforation suspected)
- Do not instrument the anus (e.g. washouts, rectal thermometers) as this may obscure lower GI contrast appearances of Hirschsprung's
- During transfer
 - nurse in supine position
 - if abdominal distension significant: close observation for hypoxia (splinting effect)

NECROTISING-ENTERO-COLITIS

- Ng tube; nil by mouth; IV fluids
- Check clotting and consider administration of FFP/extra Vitamin K
- Start IV Amoxicillin + Gentamicin + Metronidazole
- If UAC in situ, then do not remove (unless discussed with transport team)
- AP and lateral shoot through X-rays
- Ventilate if hypotensive or acidotic, according to *Yorkshire Neonatal Stabilization Guidelines*

CONGENITAL DIAPHRAGMATIC HERNIA

- Intubate as soon as diagnosis is made, **without using bag and mask** ventilation, using adequate sedation and paralysis
 - "gentle ventilation" to avoid barotrauma or pneumothorax (no hyperventilation)
 - ventilate in 100% O₂ regardless of saturations
- 10 F nasogastric tube
 - on continuous drainage
 - aspirate at least every 10 minutes to decompress stomach
- Surfactant **not** indicated, unless ≤ 32 weeks
- During transfer
 - keep baby sedated and paralysed
 - carefully observe for the possible occurrence of pneumothorax (unaffected side)

PNEUMOTHORAX/PNEUMOMEDIASTINUM

- Pneumothorax which is not under tension and causing minimal symptoms
 - formal drainage **must** be done as risk of requiring drainage in transit is always real
- Tension pneumothorax during transfer
 - = catastrophic event causing sudden and severe deterioration
 - perform needle aspiration **immediately**
- Pneumomediastinum
 - chest drain has very limited value
 - place infant in ambient oxygen concentration of 100% to enhance absorption of gas collection

CHOANAL ATRESIA

- If bilateral, infant is unable to breathe through nose
- Oro-pharyngeal airway (appropriately sized Guedel) **must** be provided - secure in place with tape
- Avoid feeding for at least 2 hours prior to transfer
- Close observation of breathing pattern during transfer is essential

PIERRE ROBIN/MICROGNATHIA

- If significant respiratory distress then place oro-pharyngeal airway (appropriately sized Guedel) or consider naso-pharyngeal airway; secure for transfer
- If endotracheal intubation is considered, this **must** be discussed with referring or receiving Consultant before any attempt is made to intubate. This can be extremely difficult, ask for help from experienced local anaesthetist
- Nurse + transfer infant in prone position, as this usually improves airway patency

NEURAL TUBE DEFECTS MENINGOCELE, ENCEPHALOCELE

- Sterile dressing if sac is ruptured
- Nurse infant in prone position to prevent pressure on lesion
- Cover back in cling film - prevent stool contamination/ can use Gelaperm/ gauze and light bandage
- Start iv Amoxicillin and Gentamicin