

THE PREMATURE INFANT

Introduction

- the *Premature* infant: < 37 weeks gestation
- *Low Birth Weight* (LBW): < 2500 g
- *Very Low Birth Weight* (VLBW): < 1500 g
- *Extremely Low Birth Weight* (ELBW): < 1000 g
- *Small for Gestational Age*: < 10th centile of birth weight for age.

Management

Before and During Labour

- prewarmed incubator and appropriate equipment for neonatal intensive care should always be kept ready in the neonatal unit (NNU).

Adequate Resuscitation

Transfer from Labour Room (LR) to NNU (Neonatal Unit)

- use prewarmed transport incubator if available. If not the baby must be wiped dry and wrapped in dry linen before transfer.
- if the infant's respiration is inadequate, keep the infant INTUBATED and AMBU BAGGED with oxygen during the transfer. For those with mild respiratory distress, preferably initiate CPAP in labour room, and if tolerated CPAP during transport.

Admission Routine

- ensure thermoneutral temperature for infant. An incubator or radiant warmer is necessary for more premature and ill babies.
- ventilation is often necessary if ventilated during transfer.
- if oxygen saturation is < 90%, oxygen therapy should be given.
- head circumference (OFC), length measurements and bathing can be omitted.
- quickly and accurately examine and weigh the infant.
- assess the gestational age with Dubowitz or Ballard score when stable (see end of this section for score).
- monitor temp, HR, RR, BP and SaO₂.

Immediate Care for Symptomatic babies

- investigations are necessary as indicated and include:
 - Blood gases.
 - Blood glucose (dextrostix)
 - Full blood count with differential WBC and IT ratio (if possible)
 - Blood culture.
 - CXR (if respiratory signs and symptoms are present)
- start on 10% dextrose drip.
- correct anaemia.
- correct hypotension (keep mean arterial pressure (MAP) > gestational age (GA) in weeks). Ensure hyperventilation is not present (a cause of hypotension). If the baby has good tone and is active, observe first as the BP often rises after the first few hours of life towards a MAP approximating GA in weeks.
- correct hypovolaemia: Give 10 ml/kg over 20-30 minutes of normal saline, or packed cells if anaemic. Avoid repeated boluses of fluid unless there is volume loss.
- start inotrope infusion if hypotension persists after volume correction.

- start antibiotics after taking cultures e.g. Penicillin and Gentamycin
- start iv aminophylline in premature babies < 34 weeks.
- maintain SaO₂ at 89-92% and PaO₂ at 50 –80 mmHg

General Measures for Premature infants

- monitor vital signs (colour, temperature, apex beat, respiratory rate). Look for signs of respiratory distress (cyanosis, grunting, tachypnoea, nasal flaring, chest recessions, apnoea). VLBW, ill babies pulse oximetry and blood pressure monitoring are necessary.
- check Dextrostix (see Hypoglycaemia protocol).
- keep warm in incubator at thermoneutral temperature for age and birth weight, ELBW may need humidified environment.
- ensure adequate nutrition
- provide parental counselling and allow free parental access.
- infection control : observe strict hand washing practices
- immunisation:
 - Hep B vaccine at birth if infant stable and BW is >1.8 kg. Otherwise give before discharge.
 - ensure BCG is given on discharge
 - for long stayers other immunisation should generally follow the schedule according to chronological rather than corrected age.
 - in the presence of acute illnesses immunisation is usually deferred.
- supplements:
 - at birth : Vitamin K IM (0.5 mg for BW<2.5 kg and 1 mg for BW= 2.5 kg and above)
 - once on full feeding, give Infant Multivitamin drops 1 mls OD (to be continued till \ fully established weaning diet) For preterm infants, choose the formulation with 400 IU Vit D, and Folic acid 1 mg OD.
 - starting at about 4 weeks of life: Elemental Iron 2-3 mg/kg/day – to be continued for 3-4 months

ICU care and Criteria for Replacement Transfusion in Neonates

See relevant chapter.

Discharge

- cranial Ultrasound for premature babies < 32 weeks recommended at:
 - within first week of life to look for intraventricular haemorrhage (IVH)
 - around day 28 to look for periventricular leucomalacia (PVL)
 - as clinically indicated
- screening for Retinopathy of Prematurity (ROP) at 34 - 36 weeks' gestation or at 4-6 weeks of age is recommended for
 - all babies < 32 weeks gestation at birth or birth weight <1500 g.
 - all preterms <36 weeks who received oxygen therapy depending on individual risk as assessed by the clinician
- the infants are discharged once they are well, showing good weight gain, established oral feeding and gestational age of at least 34 weeks.

Prognosis

- mortality and morbidity are inversely related to gestation and birth weight.
- complications include retinopathy of prematurity, chronic lung disease, neurodevelopmental delay, growth failure, cerebral palsy, mental retardation, epilepsy, blindness and deafness.