BLOOD GROUP INCOMPATIBILITIES (INCLUDING RHESUS DISEASE) ● 1/2

Aim to avoid kernicterus and severe anaemia
Keep consultant in charge informed

POSTNATAL MONITORING

Babies at risk

- Those with mothers with known blood group antibodies including:
- D (Rhesus), c, C, s, E, e, Duffy
- Kell: causes bone marrow suppression in addition to haemolysis

Management of babies at risk of haemolysis

- **Antenatally:** prepare a plan based on antibody titres, middle cerebral artery Dopplers and evidence of hydrops. In severely affected cases, order blood in advance for exchange transfusion
- Send cord blood **urgently** for Hb, blood group, direct Coombs test (DCT), Keilhauer test and **serum bilirubin** in all babies who have had an in-utero blood transfusion (IUT)
- chase results
- If pale with abnormal cardiorespiratory signs (e.g. tachycardia), admit to NNU
- If baby has positive DCT or had an IUT (regardless of DCT and blood group) discuss with middle grade or consultant
- If cord bloods not available, check baby's blood immediately for bilirubin, Hb and DCT
- Monitor serum bilirubin, usually at 6-hrly intervals until level is both stable/falling **and** 2 consecutive values are lower than treatment threshold by at least >50 micromol/L
- Plot bilirubin values on NICE gestational age-specific charts (see below)
- Keep parents informed
- Discuss progress regularly with middle grade or consultant
- Use gestational age-specific charts to determine whether baby needs phototherapy or exchange transfusion
- If baby has negative DCT and did not have IUT, no further action required; baby is not affected

Management of babies with haemolysis diagnosed or suspected postnatally

- Babies with:
- positive DCT, manage as above
- red cell enzyme defect, inform consultant

PHOTOTHERAPY

Indications/treatment thresholds

Refer to NICE jaundice guideline table and treatment charts (http://www.nice.org.uk/guidance/CG98 under 'Tools and resources' then 'CG98 Neonatal Jaundice: treatment threshold graphs')

Prophylactic phototherapy (e.g. from birth) is not beneficial

DO NOT subtract the direct/conjugated bilirubin value from the total

- Inform middle grade when a baby requires phototherapy

Management

- Plot bilirubin values on appropriate gestation NICE treatment chart
- Administer phototherapy (see **Jaundice** guideline)
- Check bilirubin 6 hr after onset of phototherapy and at least 6-hrly until level is both stable/falling **and** 2 consecutive values are lower than the treatment threshold by at least >50 micromol/L

INTRAVENOUS IMMUNOGLOBULIN (IVIG)

Always discuss indications with consultant

Indications for IVIG use in isoimmune haemolytic anaemia

Indication	Bilirubin level
IVIG indication for rapidly rising bilirubin level as recommended by NICE 2010	Rising at >8.5 micromol/L per hour despite intensive phototherapy [4 light sources used at correct distance (see **Table** in **Jaundice** guideline)]
Second dose of IVIG	If bilirubin continues to rise rapidly as above (see **Table** in **Jaundice** guideline), a single repeat dose of IVIG can be given 12 hr+ later

Dose and administration

- Complete immunoglobulin request form (this is a red indication for use; please tick relevant box on form)
- 500 mg/kg over 4 hr (see **Neonatal Formulary**)

EXCHANGE TRANSFUSION

Always discuss indications with consultant

See **Exchange transfusion** guideline

BEFORE DISCHARGE

- Check discharge Hb, bilirubin and review need for folic acid (see **Jaundice** guideline for dose)

FOLLOW-UP AND TREATMENT OF LATE ANAEMIA

Babies with weakly positive or 1–2+ DCT

- If baby did not require treatment for jaundice do not give folic acid, no follow-up is needed
- If baby required treatment for jaundice follow guidance below
- If uncertain about the need for follow-up, discuss with consultant

All babies with haemolytic anaemia

- Arrange Hb check and review at aged 2 weeks
- Discuss results urgently with neonatal consultant
- dependent on rate of fall of Hb from discharge Hb, frequency of Hb checks planned (may need to be as often as weekly)
- for babies who had IUT, IVIG or exchange transfusion, follow up with Hb check every 2 weeks initially, and until aged 3 months; thereafter arrange developmental follow-up (see below)
- for all other babies who had >2+ DCT, review with Hb check at 2 and 6 weeks; once Hb stable discharge from follow-up and discontinue folic acid if this has been prescribed

Indication for top-up transfusion for late anaemia

- Symptomatic anaemia
- Hb <75 g/L

Ongoing neurodevelopmental follow-up and hearing test

- Arrange for any baby:
- with definite red cell anomalies
- who has undergone an exchange transfusion
- who has had an IUT
- who required IVIG
- with serum bilirubin at or above exchange transfusion threshold