Neonatal emergency resuscitation

Helen New

Consultant in Paediatric Transfusion Medicine

NHS Blood and Transplant
SHOT case 2015

- Newborn baby
- chronic feto-maternal haemorrhage
  - severe anaemia, Hb 47g/L (at 2 hrs of life)
- → blood requested for urgent transfusion
  - no neonatal spec blood available on site
  - clinical request to lab for emergency adult O neg red cells
  - not granted by lab – was assumed neo rbc’s arriving
Outcome

- neonatal blood available 2 hrs later
  - transfused at 4 hrs of life
- baby survived
- case review
  - significant delay
  - neonatal blood to be kept on site at hospital
What red cells would ideally have been available?

A. Adult emergency O D neg?
B. Neonatal ‘paedipack’ < D 14?
C. Neonatal exchange transfusion pack?
D. Neonatal ‘large volume transfusion’ pack up to end of D 5?
Neonatal paedipacks

- ‘second time donors’
- CMV neg, HEV neg (NHSBT)
- High titre anti-A/B neg, ‘PANTS’ tested
- Kell neg
- Sickle neg
  - depending on Blood centre
- Split packs (approx 45 mL)
- For resuscitation
  - O D neg
  - Ideally < 14 days old (BCSH 2016)
  - Two packs should provide up to 20mL/kg
SHOT paediatric Incorrect Blood Component Transfused (wrong component) cases 2015

- 12/21 cases: adult O D neg emergency units collected and transfused to neonates/young infants
- neonatal blood was available!

Paediatric SHOT Recommendation 2015
Local measures should be in place to help guide staff to select the correct red cell component for neonatal resuscitation in emergency situations
What adult red cells to use for neonatal emergency resuscitation if no neonatal blood available?

Hierarchy of features?

A. ‘Fresh’ red cells?
B. ABO compatible, mother and baby?
C. CMV neg?
D. Antigen negative for maternal antibodies?
**Suggested hierarchy**

1. ABO compatible, mother and baby
2. Antigen negative for maternal antibodies
3. ‘Fresh’ red cells
4. Irradiated
5. CMV neg
6. HEV neg
7. High titre (HT) antibody neg
BUT, neonates should receive correct specification blood wherever possible....

- **SHOT 2015 IBCT lab error**
  - severe clinical deterioration following neonatal exchange of Group A with adult SAGM red cells
  - not realised at time of issue/transfusion
  - unit had HT anti-A antibodies
    - ‘least unlikely’ cause, low imputability

---

**Paediatric SHOT Recommendation 2015**

Particular attention should be provided for laboratory staff training regarding the specification and ordering of neonatal exchange components in hospitals with neonatal intensive care units