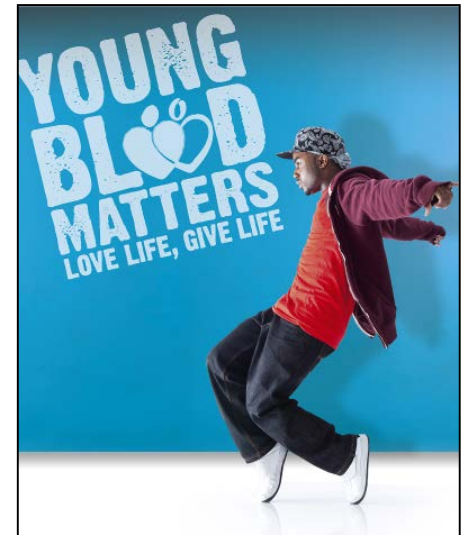


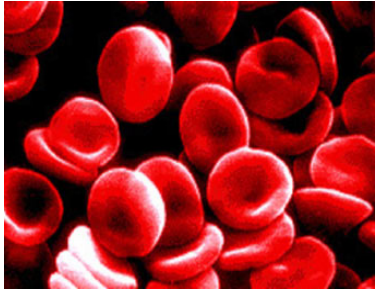
Rare donors and rare donations - how do we do it?

Dr Rekha Anand and Gina Howarth

Background

- NHSBT collects nearly 1.8 million blood and platelet donations each year from 1.3 million registered donors
- In multi-ethnic Britain 4% of our blood donations come from Black and Minority Ethnic Communities
- These communities are more susceptible to conditions that need multiple transfusions





Definitions of Rare Blood

- G.Daniels: Any factor having an incidence of 1% or less in a given population (*Human Blood Groups*)
- American Red Cross: A red cell phenotype that occurs at a frequency of 1:1000 or less
- Lacking common, clinically significant antigens
- Antigen is often linked to ethnicity

What are the options?

- Depends on the patient's condition
- When is the transfusion required; planned, semi-urgent or emergency?



Meeting demand

- Phenotyped stocks
- Screening general stocks
- Special Call-ups
- National Frozen Blood Bank
- Small pool of rare donors, e.g.
- Bombay = 4
- Inb Neg = 1
- -D-/-D- = 1
- Most common requests: U Neg, Jkb Neg, Fya Neg, S Neg; also Bombay

Planned transfusions – surgery, pregnancy

- Correct anaemia well in advance
- Liaise with surgeon, obstetrician and/or anaesthetist so that good haemostasis and monitoring of haemostasis can be assured
- Autologous transfusion? Cell-salvage? Pre-deposit?
- Thawed blood from the National Frozen Blood Bank?
- Call 'rare blood' donors or relatives with compatible blood?

Special donor call-ups



- Written procedure, initiated on average once or twice a month
- Each call-up might involve between 1 and 18 or more donors
- Contact donors, identify suitable sessions and alert staff in Collections, Manufacturing and Hospital Services
- Communication and teamwork is essential; logistics can be a challenge; donors are amazing!

Semi-urgent (hours, few days)

- Liaise with the surgeon, obstetrician, haematologist, and/or anaesthetist
- If necessary, organise the reconstitution of frozen red cells
- Call in potentially compatible donors
- Make an informed decision to give 'best matched' if no compatible blood is available

Emergency transfusion

- Give the best possible match
- The hazards of delaying transfusion are often far greater than any untoward effects caused by giving 'best matched' blood, with or without IVIG
- Giving ABO compatible blood could save a life!
- Reactions due to other incompatibilities are usually delayed and can be treated

If there is a red cell antibody specificity, must you find compatible blood?

- This is not always necessary
- But, if it is well documented that the antibody reduces red cell survival significantly, **YES!**

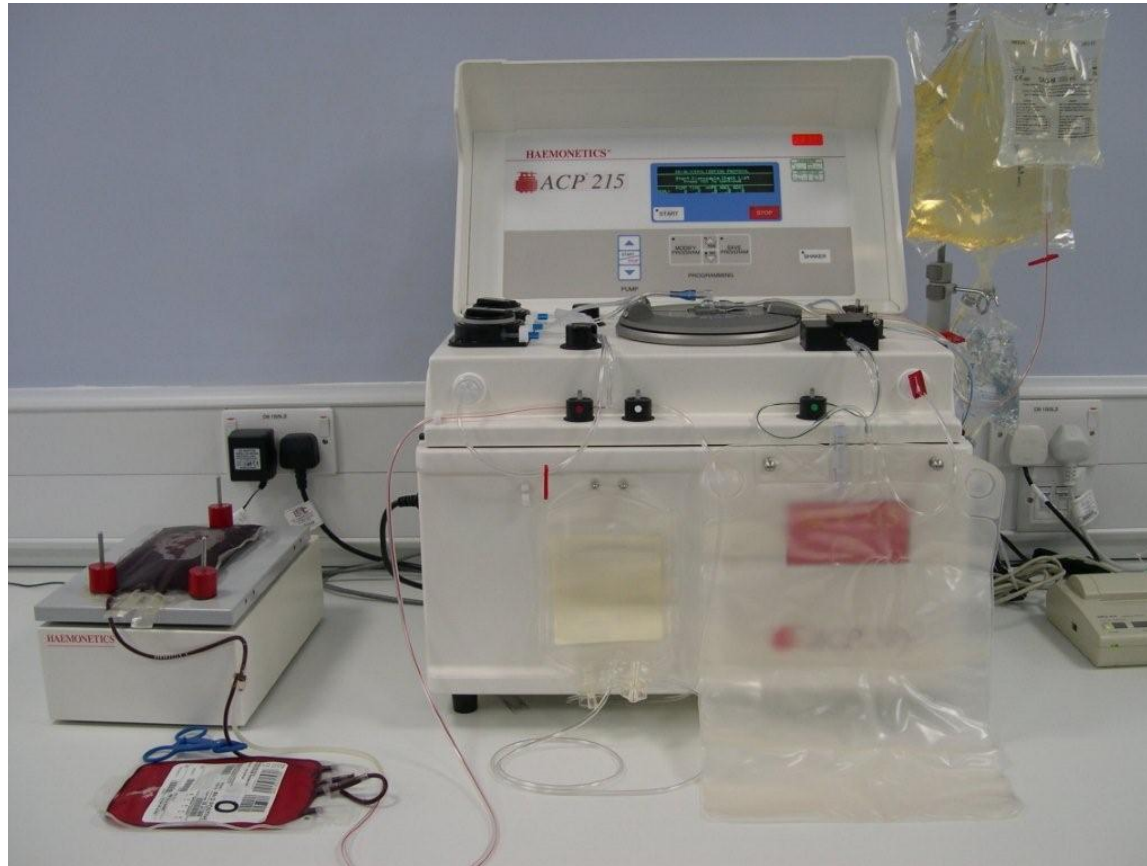
National Frozen Blood Bank

- Freeze and store donations in Liverpool centre
- Stock of over 850 donations
- Cells are processed into glycerol prior to freezing at -80oC
- May be stored for up to 30 years
- Cells are thawed and washed to remove the glycerol before issue

Frozen storage



Deglycerolisation – removal of glycerol



Frozen stock

CDE/CDE (RzRz)	K+k-	Co(a-b+)	I-	Lu(a-b-)
Cde/Cde (r'r')	KL- (McLeod)	Do(a-b+)	In(a+b-)	AnWj-
cdE/cdE (r''r'')	Ko	Do(a+b-)	Jk(a-b-)	P1k
-D-/-D-	Kmod	Fy(a-b-)	Jra-	pp
hrB-	Kp(a+b-)	Ge:-2 (Yus type)	Lan-	Vel-
hrS-	Js(a+b-)	Gya-	Lu(a+b-)	Yt(a-b+)

Blood sources

- Importing from other UK Centres
- Using the International Panel of Rare Donors (IBGRL) - >8000 donors from 27 countries
- Test family (siblings are likely to be 1:4 identical for the rarity)

The International Rare Donor Panel

- Disadvantages:
- It takes time
- The panel may not be up to date; many donors have withdrawn or are untraceable

Resources needed

- An advanced serologic laboratory-
IBGRL
- Close contact with scientists working in
other countries
- One data base showing where the rare
blood is available
- Trained staff

FUTURE!

- There will be continued need for this service
- More countries are developing their blood service identification of more problems
- Need for rare units to be supplied on international basis
- Global village! Diseases once tropical seen in western countries

Donor programmes

- Targeting ethnic minority donors
- Molecular testing of donors
- High through put methods for determining multiple blood group genotypes
- Automated technology will make it possible to have a vast data base of genotyped donors

Looking much further!

- Possibility of culturing therapeutic quantities of erythroid cells from patient or matched donor
- Availability of Hb solutions

BACK to the PRESENT

- International donor panel has to be retained
- National rare donor registers
- Need for new rare donors
- Studies of families
- Honour and appreciate rare blood donor

