IMPLEMENTING A RARE DONOR PROGRAMME:

THE IMPORTANCE OF THE

IMMUNOHAEMATOLOGY REFERENCE

LABORATORY AND THE RARE DONOR

PROGRAMME

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The South African National Blood Service

Pinetown
Introduction

• A rare blood type is defined as any blood type where the frequency is <0.1% of the general population.
• In order to implement a rare donor programme rare donors need to be identified.
• The Immunohaematology Reference Laboratory of the South African National Blood Service (SANBS) identifies these through one of the following processes:
  – Screening of routine blood donors for rare types
  – Enrolment of recovered patients that were identified through provision of compatible blood during transfusion requests
  – Family studies (direct lineage) from rare types identified either from screening or patient investigations
Rare Donor Screening

• A successful screening programme for any particular rare blood type requires a repository of the appropriate rare antisera.  
• Not often available commercially and human polyclonal reagents have to be sourced.  
• To create a repository of rare polyclonal antisera, it is necessary to be able to identify the antibodies in donors or patients.  
• The identification of these antibodies requires red cell samples of the same rare type to determine the antibody specificity.  
• Therefore, prior to creating a repository of rare antisera it is essential to have a stock of rare red cell samples as well.
Rare Donor Screening

• Once the rare antibody has been identified in a donor or patient, the plasma is standardized as a reagent by determining the titre and preparing it for frozen storage.

• Titration tests, performed by various test methods, determine the best test method of use and dilution at which the reagent will be effective.

• Dilution of the reagent ensures conservation of the rare reagent.

• The reagent is further conserved by restricting the testing to donors of specific blood groups and ethnicities.
  – Only group O (universal) donors are screened so that they may be used for patients of any ABO group.
  – Ethnicity to be tested is selected by the frequency of the rare blood type in the different ethnic groups.
When A Rare Donor Is Identified

• Additional confirmatory tests are performed.
• Full phenotyping of all the major blood group systems as well as some of the more rare ones.
• This information is then captured on an electronic database and the donor is tagged as a rare type.
• It is extremely important to have the database as a reference tool and this requires that as much information as possible on each donor is captured correctly.
• The donor is then contacted to explain the rarity and implications of their blood type.
SA Rare Donor File

- Established 35 years ago particularly to cater for the South African ethnic population.
- During this time it has established a rare donor base comprising of 20 different rare types including:
  - Bombay Oh - Co(a-) - Do(b-) - Rh:-34
  - hrS - Hy - Adult I - In(b-)
  - Jk:-3 - Js(b-) - k - Kn(a-)
  - Kp(b-) - Lan - Lu(b-) - p phenotype
  - Rhnull - U - Vel - Yt(a-)
Immunohaematology Reference Laboratory

- Ashika Sookraj, Shenaaz Amra, Latoya van Niekerk and Poobal Reddy (Shireen Nadesan – Anti-D Programme)
Functions Of The Immunohaematology Reference Laboratory

- Identify the antibodies produced by patients of rare blood types which could not be identified by other resources.
- Determine the availability of donations for transfusion.
- Where possible supply blood of the rare type.
- Standardise rare antibodies for screening purposes.
- Screen routine blood donors to identify rare types.
- Fully phenotype samples from individuals with a rare blood type.
- Co-ordinate inventory control of all rare donations bled to ensure a consistent supply of fresh and or frozen donations.
Inventory Control Of Rare Donations

• The Immunohaematology Reference Laboratory controls the inventory of the rare donations to ensure continuous provision.

• Each donation from these special rare donors is assessed to determine the outcome:
  – Kept fresh for specific transfusion
  – Stored frozen for future use
  – Stored for use in laboratory testing

• In the event that there is a known patient currently requiring rare donations or where planned surgery is scheduled then fresh donations will be kept on hand for these requests.

• At least two donations from each rare donor bled is stored annually to ensure a constant stock of rare donations.
<table>
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<th>Rare Type</th>
<th>Total Number Issued 2009 - 2012</th>
<th>SANBS</th>
<th>External/International</th>
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<td>22</td>
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Increased Demand

• There has also been an increase in the number of requests for blood that are negative for multiple antigens.
  – In the three year period more than 500 donations have been issued.

• The number and rare type requested varies considerably each year to meet the needs of the specific patients.
  – In the period 2009 – 2010 a total of 115 units were issued indicating a increased number of donations (385) issued in 2011 alone.
Current Challenges Experienced

• There has been an increase in non-specific antibodies encountered which obscure “real antibodies”.

• The decrease in immunizing events due to improved education has resulted in further scarcity of rare polyclonal antisera.

• Challenges to commitment and dedication from our donors in our increasingly busy lifestyles.

• Ongoing cost implications of running the programme.
Communication And Co-operation Between Stakeholders Is Essential

- Special Donor Services
- Special Processing Laboratory
- Inventory Laboratory
- Referral laboratory
- Treating doctor
- The patient and their family members
- Courier service
- Without effective communication and co-operation between all stakeholders these demands could not be met.
THANK YOU