

**Rh concomitant antibody
pair: anti-E and anti-c in R1R1
individuals. How different are
our laboratory protocols?**

Clameo Chimfombo,
Sydpath Pathology,
Moree Hospital, NSW

Selection of red cell products for transfusion

Current ANZSBT guidelines states :

2.2.1.1 There must be clearly written policies on selection of red cells for both routine and exceptional transfusion situations.



AIM

- Present our protocol on selection of red cells for transfusion and application in R₁R₁ patients with anti-E
- Discuss and learn from peers their respective protocols, if any different from ours . Also discuss challenges / issues with proficiency testing as current guidelines and standards do not directly address Rh concomitant antibodies

Rh concomitant antibodies

- Some Rh antibodies often occur together/ in concert
- Anti-E and anti -c most common in R₁R₁
- Individual with anti -E, mostly likely exposed to c as well
- When anti- E is detected, anti c may be present although undetected (weaker)
- Transfusing E-, c+ compatible blood may elicit an immediate or delayed reaction

Background to our protocol (1)

- Peer reviewed sources ;
 - 1) AABB Technical manual : a much (extensive) peer reviewed text used all over the world as source for developing policies and procedures , and also as an education tool
 - 2) The risk of alloimmunization to c (Rh4) in R₁R₁ patients who present with anti-E. *Transfusion* .
 - 1994 Shirley at al
 - article cited 21 times so far
 - Analysed 100 patients and 32 % of R₁R₁ patients with anti-E had concomitant anti -c .
 - IAT tube method,
 - 18.5% who had anti- E and were transfused E- blood not typed for c antigen developed anti -c

Background to our protocol (2)

3) On a much higher than reported incidence of anti-c in R₁R₁ patients with anti-E. *Immunohematology*

- Judd et al 2005

- used gel technology

- found anti -c in 65% of R₁R₁ patients who had anti - E

Data strongly support the selection of R₁R₁ RBS for all c-patients with anti -E.

Our protocol

| Antibody | Patient Phenotype | Transfuse: non urgent request | Transfuse: urgent request |
|----------|--|-------------------------------|---|
| Anti-E | R ₁ R ₁ (DCCee) | R ₁ R ₁ | E- if R ₁ R ₁ not readily available |
| Anti-E | Unknown e.g. recent transfusion | R ₁ R ₁ | E- if R ₁ R ₁ not readily available |
| Anti-E | R ₁ r (DCcee) R ₀ r (Dccee) | E- | E- |
| Anti-E | rr (dccee) | rr | rr → majority of Rh(D) neg units are rr |

- Proficient testing penalising R₁R₁ protocol
 - on appeal for review, penalty removed
- What are other labs protocols? Should this be addressed in guidelines?



Acknowledgments

- Ms Rosemary Marando, Senior Scientist , Transfusion, Sydpath, St Vincent's Hospital

References

- Brecher , ME. AABB Technical Manual. 15th Edition. Bethesda : AABB press; 2005. p 327
- Judd, W.J., Dake, L.R. and Davenport, R.D., 2005. On a much higher than reported incidence of anti-c in R₁R₁ patients with anti-E. *Immunohematology Washington DC*, 21(3), p.94.
- Shirey, R.S., Edwards, R.E. and Ness, P.M., 1994. The risk of alloimmunization to c (Rh₄) in R₁R₁ patients who present with anti-E. *Transfusion*, 34(9), pp.756-758.