ABO INCOMPATIBLE GRANULOCYTE TRANSFUSIONS: EXPERIENCE AT A LARGE HOSPITAL BASED BLOOD CENTER

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Introduction

- MD Anderson cancer patients require approximately 200 units of red blood cells and 600 units of platelets every day

- Chemotherapy induced neutropenia predisposes cancer patients to life threatening bacterial and fungal infections

- Over 600 granulocyte units are collected annually

- Granulocyte therapy started when ANC<500

- Each unit may be split and transfused to two or more recipients, including adult and pediatric patients.
Introduction

• Granulocyte collection is a complex procedure confronted with several challenges:
  – donor recruitment
  – donor commitment
  – G-CSF administration
  – short life of the granulocyte component
  – ABO compatibility

• AABB recommends the granulocyte components to be ABO compatible and if the product has >2ml of RBCs, then it should be crossmatched

• At MD Anderson, the red cells are removed from granulocyte units by gravity sedimentation after addition of hetastarch.
Current Practice at MDACC

Before sedimentation

After sedimentation

Post RBC drainage
Materials and Methods

• A computerized search was performed on all the granulocyte donations performed over a period of 7 months (Mar - Sept 2013)

• The number of ABO major-incompatible granulocyte transfusions was noted and the charts of the patients that received the units were reviewed

• Evidence for any transfusion reaction in the recipients was investigated

• The amount of red cells in the units was recorded before and after the red cell drainage in 15 random ABO incompatible donations
Results

- Total 235 granulocyte donations were performed over a period of 7 months.
- 235 donations were split into 412 units of which 406 were successfully transfused (290 adult, 116 pediatric patients).
- Of the 290 adult recipients, 85 transfusions were ABO incompatible, 19 Rh incompatible and 19 both ABO & Rh incompatible.
- No adverse reactions were reported after any of the incompatible granulocyte transfusions.
- None of the recipients developed any antibodies on subsequent screens.
Results

- The average percent reduction in RBCs in 15 random units post-drainage was 18.2%.
- The WBC count in these units ranged from 51.1 - 147.1 x 10^6/µL (mean 111.5 x 10^6/µL)

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<th>Bag Number</th>
<th>Pre drainage RBC count (x 10^6/µL)</th>
<th>Post drainage RBC count (x 10^6/µL)</th>
<th>Percent reduction</th>
<th>Post drainage WBC count (x 10^6/µL)</th>
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Conclusion

- The removal of RBCs after addition of hetastarch and gravity sedimentation effectively removes RBCs from the granulocyte product without compromising the WBC content.

- ABO incompatible granulocyte components can be safely transfused after draining the excess RBCs.
Questions?
Comments?
THANK YOU