JRA Handle With Care
INTRODUCTION

- One case study: Involves a pregnant woman of Asian background
- Overview of Jra Antibody/Antigen
CASE STUDY

- AK - 31 year old female
- Currently pregnant
- First visit at QML Pathology 26-03-2014
- only BHCG requested - LNMP 20-02-2014
CASE STUDY

- First Group and Screen request at QML 03-09-2014
- Blood Group AB Positive
- Screen all positive 2+
- DCT Negative
CASE STUDY

GRIFOLS
Perfect Panel

<table>
<thead>
<tr>
<th>Lot No</th>
<th>Donor No</th>
<th>RH Type</th>
<th>No</th>
<th>Rh</th>
<th>Roll</th>
<th>Duffy</th>
<th>Kidd</th>
<th>MNS+</th>
<th>P</th>
<th>Lewis</th>
<th>Lutherans</th>
<th>Co</th>
<th>Extra Cell Type</th>
<th>Cell</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>06111.02.1</td>
<td>AR148</td>
<td>A, A2,</td>
<td>1</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06112.02.1</td>
<td>AR144</td>
<td>A, A2,</td>
<td>2</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06113.02.1</td>
<td>AR001</td>
<td>A, A2,</td>
<td>3</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06201.02.1</td>
<td>AR188</td>
<td>A, A2,</td>
<td>4</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06211.02.1</td>
<td>AR189</td>
<td>A, A2,</td>
<td>5</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06221.02.1</td>
<td>AR213</td>
<td>A, A2,</td>
<td>6</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06231.02.1</td>
<td>AR192</td>
<td>A, A2,</td>
<td>7</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06241.02.1</td>
<td>AR214</td>
<td>A, A2,</td>
<td>8</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06251.02.1</td>
<td>AR153</td>
<td>A, A2,</td>
<td>9</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06261.02.1</td>
<td>AR190</td>
<td>A, A2,</td>
<td>10</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>06271.02.1</td>
<td>AR149</td>
<td>A, A2,</td>
<td>11</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

Please note: Co®typing not done on all donations as insufficient anti-Co® antisera available.

Grifols Australia Pty Ltd 5/60 Fairbank Rd, Clayton South, VIC 3168

Card ID: 713006150880129008
9 10 11 AC
2+ 2+ 2+ -

Card ID: 713006150880128996
1 2 3 4 5 6 7 8
2+ 2+ 2+ 2+ 2+ 2+ 2+ 2+

Authorised:
Case Study

- AK’s blood sample sent to Red Cell Reference Lab in Brisbane

- Red Cell Reference confirmed our Lab’s findings: Anti-Jra identified.

- Patient typed as Jr(a-)

- No antibody titre performed on this visit
RED CROSS RECOMMENDATIONS

- Anti-Jra in most cases not associated with HDFN

- BUT severe and fatal cases have been reported

- If required, Jr(a-) blood must be provided for transfusion purpose

- Therefore: pre-planning for AK’s delivery is important
AK’S NEXT VISIT

- 3rd November 2014
- This time sample sent to Red Cross revealed anti-Jra with a titre result of 8
QML visits Red Cell Reference Lab

- Yew-Wah in charge of Red Cell Reference Lab informed us that there are two potential Jr(a-) donors

- Donors are brothers that live in Perth
BUT....

- Both Brothers recently visited Bali which makes them unable to donate until the end of November.
- This is also unluckily roughly the same time as AK’s due date.
Upon detailed questioning of the brothers, it was found that they visited Bali for a relaxing Beach Holiday- placing them at low risk of drug exposure, needle stick injury etc.

Red Cross made the decision to collect blood from the Perth Brothers regardless of them being in their 3 months of being unable to donate.

This decision was medically supported by Dr. Shoma the MO at Red Cross.
Yew-Wah explained that this decision was based on the fact that it was more important for AK to have blood available in case of emergency- rather than sticking to the recommended medical guidelines.

He also mentioned that the risk of Malaria or Virally contaminated blood is very low in this situation.
AK’s Story continued...

- AK’s obstetrician and Red Cross recommended for her to have a C/S, however, AK wanted a natural birth.

- AK’s final Group and Screen with QML Pathology was on the 13th of November, with the intention of her being induced on the 14th of November at a Gold Coast Hospital.

- The units from Perth were flown to Brisbane and then sent on to QML Pindara for full XM.
AK’S FINAL OUTCOME

- AK’s birth went well and without complications.
- She did not end up needing any blood for transfusion.
- The Jr(a-) units were sent back to Red Cross Brisbane to be frozen for future requirements.
**JRA Overview**

- Jra first reported by Stroup and MacIlroy in 1970
- Jra is a high frequency antigen found in all ethnic groups
- Frequency of this antigen is known to be over 99% in most individuals

- Japanese population = highest number of Jr(a-)
- Incidence of the Jr(a-) phenotype is estimated to be only 0.03-0.12% even in Japanese population
JRA IN KOREA

- I contacted Dr. Kyou-Sup Han in Korea who has published a Jra study.

- He informed me that it is almost impossible to find Jr(a-) units - even in Korea.

- In Korea he has had an experience where 10 units of Jr(a+) RBCs were transfused to a patient with anti Jra.
JRA IN KOREA

- Post transfusion, this patient’s DAT became positive

- HOWEVER... The patient did not show any significant adverse reactions due to haemolysis and was able to return home a few days later

- The DAT also turned negative after about 6 months of continuous observations
In most cases described in literature, HDFN did not occur.

When HDFN did occur, it was mild to moderate and no treatment beyond phototherapy was required.
JRA AS PER DR. KYOU-SUP HAN

- It must be noted that in most cases published with mild to moderate clinical HDFN associated with the anti-Jra antibody, the Jr(a-) women had no transfusion history or previous pregnancies.

- When more severe HDFN was reported, there seemed to be a pattern of either multiple tx or multiple pregnancies.

- Thus it can be presumed that the clinical significance of the anti-Jra antibody may depend on the frequency of exposure to the antigen.
JRA AS PER DR. KYOU-SUP HAN

- Dr. Han suggested that in case of severe haemolytic reaction after birth, maybe we could draw blood from the mother, wash it, and transfuse it to the baby affected.
In Conclusion

- The potential of the Jra antibody as a clinically significant alloantibody should be considered even in cases of first pregnancy!!

- Close foetal monitoring is recommended, especially if the mother has a high antibody titre and a history of multiple pregnancies or transfusion
IN CONCLUSION

- It is almost impossible to find Jr(a-) blood
- Measures must be taken to ensure the availability of appropriate blood types
- In cases with patients that present with anti-Jra, it is recommended to phenotype the family members

OR

- even to opt for autologous blood in case of pre-planned surgery (not suitable for pregnancy)
Thank You
Thank You
Thank You!!!!