An analysis of anti-D immunoglobulin adverse incident reports to the Serious Hazards of Transfusion haemovigilance scheme from 1998 - 2012

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Background

Prophylaxis with anti-D immunoglobulin (anti-D Ig) has significantly reduced the morbidity and mortality from haemolytic disease of the newborn in RhD positive infants born to RhD negative women, yet sensitisation continues to occur.

Anti-D Ig is given after potentially sensitising events and routinely in the third trimester of pregnancy. SHOT is the UK professionally led haemovigilance scheme, taking reports of adverse events associated with transfusion and feeding back the lessons learned from them in an annual report. We here report cumulative data on anti-D reports from 1997/8 to 2012 showing a significant level of errors and a need for improved quality of care.

Results

Anti-D Ig events 1998–2012 = 1524

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of reports</th>
<th>Initial mistake made by:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>Nurse / Midwife</td>
</tr>
<tr>
<td>Delivery or late administration of anti-D Ig</td>
<td>815</td>
<td>703</td>
</tr>
<tr>
<td>Anti-D Ig given to RhD positive woman</td>
<td>306</td>
<td>149</td>
</tr>
<tr>
<td>Anti-D Ig given to woman with immune anti-D</td>
<td>130</td>
<td>70</td>
</tr>
<tr>
<td>Anti-D Ig given erroneously to mother of RhD negative infant</td>
<td>71</td>
<td>14</td>
</tr>
<tr>
<td>Anti-D Ig given to wrong woman</td>
<td>54</td>
<td>32</td>
</tr>
<tr>
<td>Wrong dose of anti-D Ig given</td>
<td>74</td>
<td>36</td>
</tr>
<tr>
<td>Anti-D Ig handling and storage errors</td>
<td>76</td>
<td>33</td>
</tr>
<tr>
<td>Totals</td>
<td>1524</td>
<td>1087</td>
</tr>
</tbody>
</table>

Many of the cases reported reflect multiple compounding errors involving laboratory, midwifery, nursing and medical staff. Categorising the initial mistake in the process by staff group shows the following breakdown, consistently through the years:

- Midwives or Nurses: 70%
- Laboratory Staff: 27%
- Medical Staff: 3%

Who makes the errors?

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Anti-D Ig events 1998–2012 = 1524

- 561 cases where anti-D Ig was inappropriately administered – unnecessary exposure to a human blood product
- 813 cases where anti-D Ig was delayed or omitted, putting the patient at risk of sensitisation to the D antigen – potential for major morbidity
- 74 cases where the wrong dose of anti-D Ig was administered - potential for under-dosing
- 76 handling and storage errors, where correct storage conditions were not met, or route of administration was incorrect

There is established national guidance available – why are we not following it?

Recommendations

Introduction of an administration checklist based on the flowchart below may help to reduce process errors. The SHOT Office will produce bespoke versions for individual organisations on request.

Actions

- Administer anti-D Ig if there is a doubt about the true RhD type or uncertainty whether detected anti-D is of immune origin or due to prophylaxis. (BCSH guidelines)

- Obstetricians, midwives and laboratory staff must be familiar with national guidance relating to Routine Antenatal Anti-D Ig Prophylaxis (RAADP) and should complete the anti-D modules on the ‘Learnbloodtransfusion’ e-learning programme.

- SHOT are currently collecting data on cases where women are found to have developed immune anti-D in pregnancy and looking back to identify possible sensitising episodes.

References

- Guideline for the use of Prophylactic anti-D Immunoglobulin (2006, currently under revision in 2013) www.bsghguidelines.com
- ‘Learnbloodtransfusion’ e-learning modules www.learnbloodtransfusion.org.uk