Anti-D Prophylaxis – a continuing and evolving problem

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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
SHOT (Serious Hazards of Transfusion) 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

SHOT 2013
- In the 2013 SHOT report 354 adverse incidents relating to anti-D Ig were reviewed
- 81% of cases involved delay or omission of anti-D Ig prophylaxis, with 19% where anti-D Ig was administered inappropriately
- While individual case studies remain perhaps our most effective educational tool, it is apparent that there are key systems failures in the process of requesting and administration of anti-D Ig that must be addressed if the process is to improve, and these are listed below
- The clinical impact of these errors is unknown as there is generally no long-term follow-up of cases
- SHOT is now conducting a survey of all cases of newly-diagnosed immune anti-D in pregnant women in order to gain a better understanding of the causes of immunisation

System failures

Communication
- A worrying lack of communication between hospital midwifery teams and those in the community (failure of RAADP in the community was noted in 63 cases)

Assumption, or failing to take responsibility or ownership
- A lack of robust systems for identifying and flagging incomplete work in the laboratory, for identifying women eligible for RAADP, for handling women who transfer their care, and assumptions that someone else is dealing with it

Lack of knowledge or training
- Failure to consider anti-D Ig when issuing RhD positive platelets to RhD negative female patients of child-bearing age
- A lack of understanding of the principles of anti-D Ig prophylaxis, compounded by uncontrolled stocks of anti-D Ig in the clinical area
- Increasing trend of poor advice being offered, often by relatively senior medical staff
- Decision making around anti-D Ig without reference to blood grouping results
- Misinterpretation of FMH / Kleihauer tests leading to incorrect dosing
- Failure of inventory management, especially in the community setting

Pressures of work / staffing issues
- Understaffing and lack of availability of senior staff leading to pressurised decision making

Poor practice / culture
- Manual transcription of results into notes and other paperwork
- A culture of completing discharge paperwork before the intervention has actually been performed
- Devolving responsibility to the woman to return at a later date for prophylaxis
- Use of the Kleihauer to determine if anti-D Ig should be given in the first place

A ‘confusion’ of guidelines
Consistency of practice in hospitals is not helped by the availability of at least six different and sometimes conflicting guidelines for anti-D Ig prophylaxis issued variously by NICE, RCOG and BCSH
BCSH take the view that it is better to give anti-D Ig than risk missing it, and consider early pregnancy to be up to 12 weeks gestation, whereas NICE say it should not be given for medical treatment of miscarriage and ectopic pregnancy up to 13 weeks gestation

<table>
<thead>
<tr>
<th>Type of event</th>
<th>Cases</th>
<th>Staff primarily Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration of anti-D Ig</td>
<td>277</td>
<td>256 / 20 / 12</td>
</tr>
<tr>
<td>Anti-D Ig given to RhD positive woman</td>
<td>23</td>
<td>16 / 4 / 4</td>
</tr>
<tr>
<td>Anti-D Ig given to RhD negative woman</td>
<td>21</td>
<td>11 / 3 / 1</td>
</tr>
<tr>
<td>Anti-D Ig given to RhD positive infant</td>
<td>11</td>
<td>12 / 10 / 0</td>
</tr>
<tr>
<td>Anti-D Ig given to RhD negative infant</td>
<td>4</td>
<td>4 / 0 / 1</td>
</tr>
<tr>
<td>Wrong patient / anti-D Ig given</td>
<td>2</td>
<td>4 / 1 / 1</td>
</tr>
<tr>
<td>Anti-D Ig on newborn / storage error</td>
<td>9</td>
<td>2 / 0 / 0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>354</td>
<td>260 / 40 / 15</td>
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SHOT continues to advocate partnership working between the Transfusion laboratory and the clinical area to develop robust, consistent policies within a hospital, that may contain elements from more than one national guideline, and the SHOT Office will provide a bespoke flowchart to meet individual hospital requirements

The example from York Hospital combines NICE recommendations in early pregnancy with BCSH guidance as the pregnancy progresses

National Comparative Audit
The National Comparative Audit of Anti-D Ig carried out in 2012/13 considered 5972 pregnant women with largely very positive outcomes, though the audit group commented that: “The transient nature of maternity care and the variety of data sources means that in many cases we cannot successfully demonstrate that Anti-D Ig is administered within the guidelines”
While 99% of women received routine antenatal prophylaxis (RAADP) and post-natal anti-D Ig, and 96% of women received anti-D Ig in response to sensitising events during pregnancy, in only 36% of cases had women received information about why they were due to receive anti-D Ig, and in only 57% cases was consent for the intervention recorded

Conclusion
Without considerable investment in terms of time, training and money to improve the process, including changes in long-established culture and attitudes in many cases, anti-D Ig errors will continue to feature highly in the SHOT haemovigilance scheme analysis