Women, Children and Sexual Health Division
Maternity Services

Guideline: Anti D- Prophylaxis

1. Introduction

The National Institute for Clinical Excellence recommend routine antenatal anti-D prophylaxis for women who are Rhesus D negative. There are also other situations where sensitisation is likely to occur during pregnancy, and delivery of the baby, which also requires anti-D prophylaxis (NICE 2008, RCOG 2011).

2. Aims and objectives

To prevent sensitisation of Rhesus (D) Negative women

3. Definitions

3.1 Haemolytic Disease of the Newborn (HDN)

About 25 to 30 babies die from HDN. An estimated 15 children per year will have major permanent problems and a further 30 children will have lesser degrees of developmental delay. A RhD negative woman who carries an RhD positive baby can be sensitised by the transfer of fetal red blood cells across the placenta into her bloodstream. The woman’s immune system produces antibodies against the RhD antigen and in a subsequent pregnancy these IgG antibodies cross the placenta and can attach to the RhD antigen on the fetal red blood cells, promoting their destruction. This is haemolysis which can lead to anaemia in the fetus, which can develop into hydrops fetalis, liver failure, brain damage and occasionally death.

3.2 Antenatal anti-D prophylaxis

The use of routine anti-D prophylaxis (RAADP) between 28 and 34 weeks markedly reduces Rh(D) sensitisation. The current practice is to administer a single dose of Anti-D at the above gestation (NICE 2008, RCOG 2011). RAADP should be given irrespective of whether anti-D Ig has been given at an earlier gestation, for example for prenatal diagnosis or vaginal bleeding.

Similarly, sensitising events that occur after administration of RAADP should be covered with an additional dose of anti-D Ig (500 iu, unless Kleihauer testing indicates that a larger dose is required).

3.3 Kleihauer Test

The Kleihauer test determines the number of fetal red cells in the maternal circulation to identify Rhesus D negative women with a large feto-maternal haemorrhage who require additional Anti-D Ig (see Section 4.1 below). This test should be performed in the following situations (sensitising events):

- Within two hours following any delivery, and
- All potentially sensitising events e.g.
- Invasive prenatal diagnosis,
- any abdominal trauma in the third trimester,
- antepartum haemorrhage, external cephalic version,
- traumatic deliveries including caesarean section
- manual removal of the placenta
- stillbirths and fetal deaths
- abdominal trauma during the third trimester
- unexplained hydrops fetalis

4. Administration of Anti-D following Miscarriage, Ectopic Pregnancy and Termination of Pregnancy:

Routine Antenatal Anti-D Prophylaxis (RAADP) at 28-32 weeks and Anti-D Ig for sensitising events are considered separate entities. RAADP is not an alternative to anti-D Ig for sensitising events and vice versa. RAADP should be given irrespective of whether anti-D Ig has been given at an earlier gestation, for example for prenatal diagnosis or vaginal bleeding.

Similarly, sensitising events that occur after administration of RAADP should be covered with an additional dose of anti-D Ig (500 iu, unless Kleihauer testing indicates that a larger dose is required).

4.1 Prophylaxis following Miscarriage

When indicated, anti-D Ig is administered in a dose of 250 iu up to 19\textsuperscript{th} weeks of gestation and a dose of 500 iu thereafter. A Kleihauer test for the size of FMH should be performed when anti-D Ig is given at or after 20\textsuperscript{th} weeks of gestation.

- Anti-D Ig should be given to all non-sensitised RhD-negative women who have a spontaneous, complete or incomplete miscarriage at or after 12\textsuperscript{th} weeks of gestation.
- Anti-D Ig is not required for spontaneous miscarriage before 12\textsuperscript{th} weeks of gestation, provided there is no instrumentation of the uterus.
- Anti-D Ig should be given to non-sensitised RhD-negative women undergoing surgical evacuation of the uterus, regardless of gestation.
- Anti-D Ig should be considered for non-sensitised RhD negative women undergoing medical evacuation of the uterus, regardless of gestation.

4.2 Prophylaxis following Threatened miscarriage

- Anti-D Ig should be given to all non-sensitised RhD-negative women with a threatened miscarriage after 12\textsuperscript{th} weeks of gestation. In women in whom bleeding continues intermittently after 12+0 weeks of gestation, anti-D Ig should be given at 6-weekly intervals.
- Anti-D Ig should be considered in non-sensitised RhD-negative women if there is heavy or repeated bleeding or associated abdominal pain as gestation approaches 12+0 weeks.
4.3 Prophylaxis following Ectopic pregnancy

- Anti-D Ig should be given to all non-sensitised RhD-negative women who have an ectopic pregnancy, regardless of management.

4.4 Prophylaxis following Therapeutic termination of pregnancy

- Anti-D Ig should be given to all non-sensitised RhD-negative women having a therapeutic termination of pregnancy whether by surgical or medical methods regardless of gestational age.

5. Procedure of Routine Antenatal Anti D prophylaxis (RAADP)

- RAADP should be offered to all non-sensitised RhD-negative women.
- RAADP is not required in women who are RhD sensitised.
- RAADP is a completely separate entity from the anti-D Ig required for potentially sensitising events.
- Women who are eligible for RAADP should receive written information before making an informed decision about opting for treatment.

The process is detailed in appendix One

6. Postnatal Assessment and Prophylaxis

After delivery a sample of cord blood is obtained and sent to the laboratory for a
- Full blood count,
- Group and Rhesus status
- Bilirubin, and
- Direct Coomb’s Test

Within two hours following delivery a samples of the woman’s blood is sent to the laboratory for
- Kliehauer test
- Full blood count,
- Group and Rhesus status

If indicated, Anti-D will be issued by the Transfusion Laboratory and should be administered as soon as possible or within 72 hours of delivery to the woman.

However, if anti-D gets inadvertently delayed or missed this can be administered up to 10 days as this may provide protection (RCOG 2011).

7. Situations where anti-D may not be required

The woman may decline anti-D, on the following grounds;
- Religious grounds
- Sterilisation following birth, and is certain will not have not have more childfree
- If the father of the baby is known to be RhD-negative

In these circumstances offer full discussion and provide appropriate literature, and screening at 28 weeks should still occur to identify whether sensitisation has occurred.

8. What are the risks of Anti-D

Anti-D is a pooled plasma product. As it is extracted from donor blood and although donors are carefully screened for transmissible infections and viral inactivation steps are included in the process there is always an extremely small risk of the transmission of blood borne infections (NICE 2008).

There is also a small risk of an allergic reaction.

9. Record Keeping

The transfusion card provides a sticker and a card (in the Anti-D pack)
- The sticker is completed and placed in the woman’s handheld healthcare records following administration of the anti-D injection.
- The card is completed and placed in the box attached to ‘anti-D fridge’.
- The card is collected by Blood Transfusion who will check paperwork is correct

10. Monitoring Compliance

All professional who review women at or after 28 weeks should ensure that Anti-D was offered and the pathway followed. The midwife will record that the woman has declined to receive prophylactic Anti-D and document her reasons for the same. This documentation needs to be entered in the main healthcare records and the appointment books, and if available the handheld healthcare records. Non-attending women are contacted where possible either directly or via their community midwife and offered a further appointment within 1 to 2 weeks.

11. References:

Routine Antenatal anti-D prophylaxis for women who are rhesus D negative. Review of the NICE technology appraisal guidance 41. Issue date: August 2008 available on (www.nice.org.uk).

RCOG 2011 The Use of Anti-D Immunoglobulin for Rhesus D prophylaxis. RCOG Green top guideline 22 available online (www.rcog.org.uk)


Dymphna Sexton-Bradshaw
Associate Director of Women,
Children's & Sexual Health Division / Head of Midwifery

Aban Kadva
Consultant Obstetrician
Lead Delivery Suite

Gavin Campbell
Consultant Haematologist

<table>
<thead>
<tr>
<th>Version</th>
<th>Author (s)</th>
<th>Date</th>
<th>Circulation</th>
<th>Comments</th>
</tr>
</thead>
</table>
| One     | Miss Jo Osborne  
Consultant Obstetrician & Gynaecologist | 2003 | Clinical Practices Group | Written |
| Two     | Sharon O'Connell  
ANC Midwife | 2008 | | Reviewed & Revised |
| Three   | Judy Evans  
Antenatal & AAU Sister  
Aban Kadva, Consultant Obstetrician & Gynaecologist  
Julie Hinchcliffe  
Senior Midwife Risk Management | 2011 | Consultant Lead for Haematology Supervisors of Midwives | Revised & Reviewed |
### Appendix One

<table>
<thead>
<tr>
<th>Procedure for RAADP at CHUFT</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenatal Booking bloods including Group &amp; Antibody screen are obtained and sent for all women, using the (Pink) Antenatal Blood test Request form.</td>
<td>Booking Midwife</td>
</tr>
<tr>
<td>Copies of all Rh D Neg women results are sent as follows:</td>
<td>Transfusion laboratory</td>
</tr>
<tr>
<td>- Colchester and Out of Area women – ANC at CHUFT</td>
<td></td>
</tr>
<tr>
<td>- Clacton - Clacton MLU</td>
<td></td>
</tr>
<tr>
<td>- Harwich – Harwich MLU</td>
<td></td>
</tr>
<tr>
<td>• Blood results filed in main healthcare records for all women</td>
<td>Admin clerical / Midwife</td>
</tr>
<tr>
<td>• Appointment booked by the co-ordinating midwife for woman to attend @ 28 to 30 weeks and recorded in the diary in ANC and MLU’s</td>
<td></td>
</tr>
<tr>
<td>The woman receives:</td>
<td>Antenatal Midwife</td>
</tr>
<tr>
<td>- Appointment letter with information leaflet (NHS: Blood Groups and Red Cell Antibodies in Pregnancy )</td>
<td></td>
</tr>
<tr>
<td>- Completed (Pink) Antenatal Blood test Request form for FBC &amp; Group &amp; Antibody screen with instruction to have tests within 3 days prior to attending for anti-D injection</td>
<td></td>
</tr>
<tr>
<td>Lists of women expected to attend for Anti-D in the forthcoming week are sent to transfusion laboratory in a timely manner</td>
<td>Midwife in ANC / MLU</td>
</tr>
<tr>
<td>The laboratory issue pre-prepared Anti-D for each woman</td>
<td>Transfusion Lab</td>
</tr>
<tr>
<td>• ANC / MLU’s arrange delivery of Anti-D to appropriate area</td>
<td></td>
</tr>
<tr>
<td>• Anti–D is to be stored only in the appropriate refrigerators</td>
<td>Transfusion Lab, Porters, ANC Midwife</td>
</tr>
<tr>
<td>28-30 weeks</td>
<td>ANC Midwife</td>
</tr>
<tr>
<td>• All Rh D Neg women attend for Appt</td>
<td>Midwife</td>
</tr>
<tr>
<td>• Antenatal prophylaxis discussed again and the summary product characteristic information leaflet included pack is given to the woman and verbal consent obtained</td>
<td></td>
</tr>
<tr>
<td>• Anti-D 1500iu IM (Rhophylac 300, 300mcg/2mls) is administered as a Midwife Exemption (ME)</td>
<td></td>
</tr>
<tr>
<td>• The dose is recorded (and signed) in the woman’s Medication Chart</td>
<td></td>
</tr>
<tr>
<td>• The anti-D administration is recorded and signed by the Midwife, using the ‘Rh D NEG’ stamp in the woman’s handheld healthcare records.</td>
<td></td>
</tr>
<tr>
<td>• The Red Ink Rh D Neg stamp’ is stamped on the Delivery Page in the woman’s handheld healthcare records to alert staff</td>
<td></td>
</tr>
<tr>
<td>• Transfusion Sticker – see Section 8 below</td>
<td></td>
</tr>
<tr>
<td>&lt;28 weeks or &gt;30 weeks gestation:</td>
<td>Midwife/Doctor</td>
</tr>
<tr>
<td>The routine anti-D will need to be prescribed by doctor</td>
<td></td>
</tr>
<tr>
<td><strong>Additional Information</strong></td>
<td></td>
</tr>
<tr>
<td>Anti-D can be administered IV in a similar dose for women in special circumstances e.g. if a Rh D Neg woman was given Rh(D)Positive products inadvertently in an emergency situation or has sustained a massive fetomaternal bleed.</td>
<td></td>
</tr>
</tbody>
</table>