UNC Detection & Prevention
Isoimmunization Protocol

ALL PREGNANT WOMEN INITIATION OF PRENATAL CARE

Determine Blood Type

Asses for Rh (D) Factor

Test for Irregular Antibodies

Note results on record

Present ("Positive")

Absent ("Negative")

Enter by spelling out the word "positive" on the prenatal record and proceed with standard prenatal care

Enter by spelling out the word "negative" on the prenatal record and flag chart

Rh (D) Factor Negative

*see next page

Negative

Enter on the prenatal record; proceed with standard prenatal care

Lewis or "I"

Any factor other than Lewis or "I"

Refer to UNC OB Clinic

Positive

Enter on prenatal record and proceed with standard prenatal care. Repeat antibody identification at 26-28 weeks

New antibodies

No

Routine care

Yes

Refer to UNC OB Clinic
Rh (D) Factor Negative

If paternity certain, Rh testing of the baby's father, may eliminate unnecessary blood product administration

Flag chart with "Administer Rhogam" sticker

Miscarriage
* Threatened miscarriage
* Induced abortion
* Ectopic pregnancy
* Partial molar pregnancy
* Amniocentesis

Anti D Titer >1:1

No

Administer 300 mcg anti-D Immune globulin "rhogam" IM

At 26-28 week gestation:
1) Recheck antibody titer and for irregular antibodies
2) Administer 300 mcg anti-D Immune globulin "rhogam" IM*

Refer to UNC OB Clinic

Routine Care

Yes

Refer to UNC OB Clinic

Follow UNC recommendations for continuing care

Anti D Titer >1:1

Yes

No

* Note: Women who are rh negative and Du positive should not receive anti-D Immune globulin (rhogam).
Positive Antibody Screen/Red Cell Sensitization

References

1) ACOG Educational Bulletin #227, August 1996. Management of Isoimmunization in Pregnancy

Additional anti-red cell antibodies known to cause hemolytic disease include:

<table>
<thead>
<tr>
<th>TABLE 1. ISOIMMUNIZATION RESULTING FROM IRREGULAR ANTIBODIES*</th>
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<tbody>
<tr>
<td>Blood Group System</td>
</tr>
<tr>
<td>Rh</td>
</tr>
<tr>
<td>Kell</td>
</tr>
<tr>
<td>Duffy</td>
</tr>
<tr>
<td>Kidd</td>
</tr>
<tr>
<td>MNs</td>
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<tr>
<td>Lutheran</td>
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<tr>
<td>Diego</td>
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<td>Xg</td>
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<tr>
<td>P</td>
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<tr>
<td>Public antigens</td>
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<tr>
<td>Private antigens</td>
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* Lewis (Le+, Le-) and I antigens are not causes of hemolytic disease of the newborn.


The severity of the hemolytic disease will usually be equal to or greater than that of the previous pregnancy. If a patient has had a prior affected pregnancy (neonatal exchange transfusion, early delivery or intrauterine transfusion, antibody titers are not necessary because amniocentesis or percutaneous umbilical blood sampling will be required. The timing of the initial procedure is determined by past clinical history (usually 4-8 weeks earlier than the prior gestational age at which significant morbidity occurred).


When the titer is 1:32 by indirect antiglobulin (indirect Coombs test), amniocentesis or percutaneous umbilical cord blood sampling (cordocentesis) should be considered.


When there is a history of hydrops or the father is Kell-positive and the maternal anti-Kell indirect antiglobulin titer is 8 or greater, amniocentesis should be performed at 16-20 weeks' gestation.


If a patient has never had a pregnancy complicated by Rh-related neonatal morbidity other than hyperbilirubinemia treated by phototherapy, antibody titers are the initial step of management. Antibody titers should be determined at the first prenatal visit and approximately every 4 weeks thereafter.


The genotype of the fetus’s father should be determined. If the father of the fetus does not possess the antigen, the fetus is not at risk. If the father is heterozygous, there is a 50% chance that the fetus has inherited the blood group antigen, and the pregnancy is affected. The most likely zygosity for the D antigen can also be predicted as the alleles at the c, D and E loci are inherited together.

Genotype testing may be sent to:

The Blood Center
638 N. 18th St.
Milwaukee, WI 53233-2121 Ph: 1 800 245-3117


The risk of anemia was high in fetuses with a peak systolic velocity of 1.50 times the median or higher. Fetuses with values below 1.50 either did not have anemia or only mild anemia.


In a series of 239 pregnancies in which the fetus was D negative and the mother had previously been immunized to the RhD antigen, the maternal titer of anti-D was found to vary considerably. The variation may give the impression of a rising anti-D titer, but the rise usually is within the limits of experimental error inherent in the estimation of serial titers. A titer may also rise due to an increase in the binding capacity of their antibody. Thus an apparent rise or fall of one or two tubes (2-4 fold dilution) need have no clinical significance.


In a parallel study conducted over a 1-year period, involving 460 private prenatal patients, the effect of routine prenatal phenobarbital for the prevention of neonatal jaundice was evaluated. No significant complications resulted from the drug therapy and the newborn infants demonstrated no adverse effects attributable to the phenobarbital. …Phenobarbital prophylaxis was found to be a safe, effective, and economic method of preventing hyperbilirubinemia in the newborn.

NOTIFICATION TO USERS

These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur in pregnancy. They should not be interpreted as standard of care but instead represent guidelines for the management of these patients. Variation in practice should be taken into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities. The algorithms remain the intellectual property of the University of North Carolina School of Medicine at Chapel Hill. They cannot be reproduced in whole or part without the expressed permission of the school.