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# Life Blood Centre

## Scientific News Letter

38 Years in Blood Transfusion

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## Algorithm for management of alloimmunized pregnancies

Hemolytic disease of fetus and newborn (HDFN) has been a major cause of perinatal mortality and morbidity. Even after the introduction of Rh immunoglobulin, HDFN still continues to be one of the commonest causes of hyperbilirubinemia in neonates.

Antenatal antibody screening is mandatory in developed countries, whereas guidelines for the same have been laid down by Drug Controller General , India, but not universally followed.

**Guidelines goes like.....**
**Antenatal antibody screening for all pregnant women irrespective of Rh (D) status.**

**Samples should be taken for ABO & D typing and antibody screening in first trimester and repeated at 28 weeks gestation.**

**Aim is :**
- **To identify Rh (D) negative women who need Rh immunoglobulin prophylaxis**
- **To detect clinically significant antibodies which might cause HDFN and to monitor them**
- **To highlight possible transfusion problems**

If initial as well as repeat antibody screen at 28 weeks is negative in Rh (D) negative woman, she is a candidate for Rh Ig prophylaxis. Antibody screening in third trimester is not recommended by BSCH (British Committee for Standards in Haematology) as antibodies formed only in third trimester generally do not cause HDFN.

If antibody screen is positive, antibody identification should be done. Clinically significant antibodies are those which cross the placenta and corresponding antigen is expressed on fetal red cells. Most commonly encountered clinically significant antibodies are anti D, anti K, anti c, anti C and anti Fya.

Titers play an important role in decision making in alloimmunized pregnancies. For anti D and anti c and anti K, Titers should be repeated every 4 weeks up to 28 weeks and then every 2 weeks until delivery (RCOG green top guidelines, 2014). For all other antibodies, retesting at 28 weeks is advised, except in women who have had previous history of pregnancies affected with HDFN.

Kell alloimmunisation is being recognized as second major cause of fetal hemolytic anemia. Anti K antibodies cause suppression of erythropoiesis in bone marrow in addition to red cell destruction. Transfusion is considered to be the most important cause of Kell alloimmunisation. Several researchers have recommended transfusion of Kell negative blood in women younger than 45 years of age.

**Critical levels for Anti D (levels below which HDFN is unlikely) is 16 and for Anti K is 8. Once critical Titers are reached Doppler fetal ultrasound of middle cerebral artery (MCA - PSV ) is noninvasive way to asses fetal anemia.**

**Intervention in the form of intrauterine transfusions can be done. Red cells used for intrauterine transfusions should be leucodepleted, irradiated and should lack Hb S.**

Globally, alloimmunisation rates amongst pregnant women range from 0.4 to 2.7 %. A study revealed overall prevalence of alloimmunisation in multigravida women to be 1.2 %. Prevalence of alloimmunisation in Rh (D) negative group was 10.4 % whereas, in Rh (D) positive group was 0.125%. Anti D still the most commonly encountered antibody (78.43%); 21.57 % of antibodies formed were not anti D. Other antibodies detected included anti C, anti c, anti K, anti M and S. 92.15 % of all antibodies belonged to Rhesus group. Multiple antibodies were present in 13.3% patients, the most common combination being anti C and anti D.

**Screening of all antenatal women for red cell alloantibodies is mandatory in developed countries. We, in India, need to focus on antibody screening. Early detection and timely intervention can help to reduce morbidity and mortality.**

### Project 'Life'

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### Life Blood Centre

*A Centre for Excellence in Transfusion Medicine*

**Dr. Varsha Sorathiya**
Blood Transfusion Officer
lbc.bto@999life.org
99987 24121

**Dr. Sanjiv Nandani**
Medical Director
lbc@999life.org
98253 14831

**Meetal Koticha Shah**
Joint Executive Trustee
savelife@999life.org

**NAT & X-Ray Irradiated blood units available at Life Blood Centre.**

**Life Blood Centre**
(Formerly known as Rajkot Voluntary Blood Bank & Research Centre)
(NABH Accredited Regional Blood Transfusion Centre)
Smt. Sushilaben Ramniklal Mehta Bhavan, 24, Vijay Plot, Malaviya Road, Rajkot - 360 002, Gujarat, India.
(+91-281) 223 42 42 / 43 +91 85 11 22 11 22 lbc@999life.org www.lifebloodcentre.org