

**COMPLICATIONS OF RHESUS D POSITIVE BLOOD GROUP
INCOMPATIBILITY**

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SUMMARY

Rhesus factor is an inherited protein found on the surface of red blood cells. Rhesus incompatibility is a condition that occurs when an individual with rhesus D negative blood is immunized with rhesus D positive blood triggering to development of rhesus antibodies. Although the rhesus D blood group system consists of many antigen e.g D, C, c, E and e. the D antigen is the most immunogenic. The blood of a Rhesus positive fetus get into the blood stream of a rhesus D negative mother. The woman becomes sensitized to the rhesus D positive fetus blood thereby triggering the production Rhesus antibodies that has the ability to cross the placenta and try to destroy the fetal blood. It can also occur through wrong transfusion reaction when the red blood cells that were given during the transfusion. A group of clinical signs due to antibody in the recipient's blood reacting with the transfused red blood cells when blood for transfusion is incorrectly matched, or when the recipient has an adverse reaction to some element of the donor blood.

COMPLICATIONS OF RHESUS D POSITIVE BLOOD GROUP INCOMPATIBILITY

Rhesus incompatibility is a condition that occurs when an individual with rhesus D blood is exposed to Rhesus D negative blood cells, leading to the development of Rhesus antibodies. It can be caused when a rhesus D negative blood is being exposed to Rhesus D positive blood or wrong blood transfusion.

The Rhesus blood group systems consist of many antigen e.g. D, C, c, E and e. the D antigen is the most immunogenic, therefore, it is most commonly involved in Rhesus incompatibility.

COMPLICATIONS OF RHESUS D POSITIVE BLOOD GROUP

Hemolytic disease of the newborn

The hemolytic condition occurs when there is an incompatibility between the blood types of the mother and the fetus. There is also potential incompatibility if the mother is Rh negative and the father is positive. When any incompatibility is detected, the mother often receives an injection 72 hours after birth to avoid the development of antibodies toward the fetus. These terms do not indicate which specific antigen-antibody incompatibility is implicated. The disorder in the fetus due to Rh D incompatibility is known as erythroblastosis fetalis.

When the condition is caused by the Rh D antigen-antibody incompatibility, it is called **Rh D Hemolytic disease of the newborn** or **Rh disease**. Here, sensitization to Rh D antigens may lead to the production of maternal IgG anti-D antibodies which can pass through the placenta. This is of particular importance to D negative females at or below childbearing age, because any subsequent pregnancy may be affected by the Rh D hemolytic disease of the newborn if the baby is D positive. The vast majority of Rh disease is preventable in modern antenatal care by injections of IgG anti-D antibodies (Rho(D) Immune Globulin).

ABORTION

Abortion is the ending of a pregnancy by removal or expulsion of an embryo or fetus before it can survive outside the uterus. During abortion, Rhesus D positive blood may have come in contact with Rhesus D negative blood, once Rhesus D positive comes in contact with rhesus D negative certain antibodies are activated and they thereby stop anything that is a threat grain invading the body (baby).

SPONTANEOUS ABORTION (MISCARRIAGE)

Is a term used for a pregnancy that end on its own, within 20-24 weeks gestation. A rhesus D mother with activated antibodies would keep having loss of pregnancy because the antibodies would keep destroying and removing the fetal red blood cell before their lifespan is up. These problem usually do not occur in first pregnancy but later pregnancy.

TRANSFUSION REACTION

A group of clinical signs due to antibody in the recipient's blood reacting with the transfused red blood cells when blood for transfusion is incorrectly matched, or when the recipient has an adverse reaction to some element of the donor blood. Most commonly, there is an immune-mediated hemolysis involving alloantibodies, which may be naturally occurring or the result of an earlier transfusion, in the recipient's serum and the donor's erythrocytes. In ruminants, signs appear during the transfusion. If death occurs, it is because of pulmonary edema.

REFERENCES

- Autonios, Nathalie. (2011). "Rhesus incompatibility in pregnancy". *Embryo Project Encyclopedia*. 1940 – 5030.
- Ammaria Aouar Metri, (2012). "A genetic study of nine populations from the region of Tlemcen in Western Algeria: a comparative analysis on the Mediterranean scale". *Anthropological Science*. **120** (3): 209–216.
- Basu, Sabita, Kaur, Gagandeep. (2011). " Hemolytic disease of the New born". *Asian Journal of Transfusion science*.**5** (1): 3-7.
- Eweidah, M, H., Rahiman, S., Ali, M, D, H., Al-Shamary, A, M, D. (April 2011). "Distribution of ABO and Rhesus (RHD) Blood Groups in Al-Jouf Province of the Saudi Arabia" (PDF). *The Anthropologist*. **13** (2): 99–102.
- Flegr, J., Klose, J., Novotná, M., Berenreitterová, M., Havlíček, J. (2009). "Increased incidence of traffic accidents in Toxoplasma-infected military drivers and protective effect RhD molecule revealed by a large-scale prospective cohort study". *Biomedical Central Infection. Dis*. **9**: 72.
- Golassa, Lemu, (2017). "High rhesus (Rh (D)) negative frequency and ethnic-group based ABO blood group distribution in Ethiopia". *Biomedical Cental infection Research Notes*. **10** (1): 330.

- Gruswitz, F., Chaudhary, S., Schlessinger, A., Pezeshki, B., Sali, A., Westhoff, C, M., Stroud, R, M. (2010). "Function of human Rh based on structure of RhCG at 2.1 A". *Proceedings of the National Academy of Sciences*. **107** (21): 9638–9643.
- Maheshwari, A., Carlo, W,A. (2011). "Rhesus D disorder" *Nelson Textbook of pediatrics*; **97**: 20-22.
- Sembulingam, K., Sembulingam, P. (2012). "Essentials of medical physiology". New Delhi: *Jaypee Brothers Medical publishers*.
- Strobel, Erwin. (2008). "Transfusion Reactions". *Transfusion Medicine and Hemotherapy*.**35** (5): 46 – 53.
- Skaik, Younis, Abed, El-Wahhab. (July–December 2011). "The Rh allele frequencies in Gaza city in Palestine". *Asian Journal of Transfusion Science*. **5** (2): 150–152.
- Wafi, E, L., Housse, M, E, L., Nourichafi, H, N., Bouisk, K., Benajiba, M., Habti, N. (2016). "Prevalence of weak D phenotype among D negative C/E+ blood donors in Morocco" (PDF). *International Journal of Blood Transfusion and Immunohematology*. **6** (1): 3–7.
- Weinstock, Christof. (January 2014). "It is worthwhile filling in the remaining blank spots for blood group antigen frequencies". *Blood Transfusion*. **12** (1): 3–6.