

Maternal IVIG Administration in Rhesus Alloimmunized Pregnancies: A Systematic Review

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Background: Rhesus (Rh) alloimmunization occurs when an Rh negative mother is exposed to red blood cells (RBC) from an Rh positive fetus. The mother develops antibodies in the current pregnancy that attack Rh positive fetus in subsequent pregnancy, causing hemolytic disease of the fetus and newborn (HDFN). RhD is the most common antigen to result in fetal anemia requiring intrauterine transfusions (IUT). Although the traditional method of management and highly effective, IUTs carry significant risk particularly when performed early in gestation, potentially resulting in procedure-related fetal deaths. Intravenous immunoglobulin (IVIG) therapy may postpone or even replace invasive intrauterine treatment in fetuses of mothers with severe alloimmunization in previous pregnancies.

Objective: To evaluate whether maternal administration of IVIG in high-risk Rhesus alloimmunized pregnancies is effective in delaying the need for IUTs as well as delaying the onset of severe fetal anemia and thus in diminishing its clinical consequences.

Study design: A systematic literature search was conducted for maternal intravenous immunoglobulin administration in pregnancies with Rh isoimmunization in the following databases: Medline, Embase and Cochrane Library from 1946 to 2 February 2023. Inclusion criteria was studies done during pregnancy in which IVIG was administered to the mother in Rh alloimmunized pregnancies/fetal anemia. All non-english papers, animal papers, systematic reviews, editorials and studies in which IVIG was administered to non-pregnant patients were excluded. Data was extracted from these full texts and analyzed for inclusion based on the quantity of usable data and patient information. Extracted data included maternal antibody type and titer, number of maternal IVIG administrations, number of IUTs, and fetal Hb levels prior to first IUT and at delivery. Time interval (weeks) between IVIG and first IUT was also included in the extracted data along with gestational age at delivery. Individual patient data extraction was done for studies that provided data.

Results: 16 studies were included in data analysis. Analysis of extracted data is ongoing.