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### Rh Blood Group Antigens and Alloimmunization Risk of Pregnant Women in South Western, Nigeria

*Antigènes du Groupe Sanguin Rh et Risque d'Aloimmunisation chez les Femmes Enceintes dans le Sud-Ouest du Nigéria*

<sup>1</sup>\*F. A. Fasola, <sup>2</sup>H. Y. Oladokun, <sup>3</sup>O. O. Adesina, <sup>4</sup>O. O. Fasola

#### ABSTRACT

**BACKGROUND:** Rh blood group antigens are the second most important blood group antigens in clinical transfusion due to their immunogenicity and prevalence. Childbirth, miscarriage, and other obstetrics events are risk factors for alloimmunization in women which increases the likelihood of haemolytic blood transfusion reaction and hemolytic disease of the fetal/newborn (HDNF/B). Even though there are several data on the RhD status of our populations. However, there is a dearth of data on pregnant women's C, E, c, and e status, their alloimmunization risk, and rates in Nigeria.

**Objectives:** This study aims to provide information on the distribution of the Rh major antigens and risk factors for alloimmunization in pregnant women in southwestern Nigeria.

**MATERIALS AND METHODS:** This was a descriptive cross-sectional study of 133 pregnant women attending routine ante-natal clinics. Questionnaires were administered to collect biodata and obstetrics history. ABO blood grouping and Rh phenotyping were carried out on their blood samples using RAPID LABS Monoclonal Rhesus Typing Reagent.

**RESULTS AND DISCUSSION:** Rh blood group antigen c was present in 100% of the women, followed by e (98.5%) and D (95.5%). C and E are the least prevalent antigens and probably the ones to which antibodies may be formed. The commonest Rh phenotype was Dce. Of all the pregnant women, alloimmunization was present in 0.8%. Of those who were RhD negative, alloimmunization was present in 16.7%. Pregnant women are more likely to be alloimmunized against C and E antigens than c and e antigens due to their low and high frequencies respectively.

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**KEYWORDS:** Rh blood group antigens, Phenotype, RBC alloantibodies, Pregnant women

#### RÉSUMÉ

**CONTEXTE:** Les antigènes du groupe sanguin Rh sont les seconds plus importants en transfusion clinique en raison de leur immunogénicité et de leur prévalence. L'accouchement, la fausse couche et d'autres événements obstétriques sont des facteurs de risque d'alloimmunisation chez les femmes, augmentant ainsi la probabilité de réactions hémolytiques lors de transfusions sanguines et de maladies hémolytiques du fœtus/nouveau-né (HDNF/B). Bien qu'il existe plusieurs données sur le statut RhD de nos populations, il y a un manque de données sur le statut des antigènes C, E, c et e chez les femmes enceintes, leur risque d'alloimmunisation et les taux associés au Nigéria.

**OBJECTIFS:** Cette étude vise à fournir des informations sur la distribution des principaux antigènes Rh et les facteurs de risque d'alloimmunisation chez les femmes enceintes dans le sud-ouest du Nigéria.

**MÉTHODOLOGIE:** Il s'agit d'une étude descriptive transversale de 133 femmes enceintes fréquentant les cliniques prénatales de routine. Des questionnaires ont été administrés pour collecter des données biodémographiques et des antécédents obstétriques. La détermination des groupes sanguins ABO et le phénotypage Rh ont été réalisés sur leurs échantillons de sang à l'aide du réactif de typage Rh monoclonal RAPID LABS.

**RÉSULTATS ET DISCUSSION:** L'antigène c du groupe sanguin Rh était présent chez 100 % des femmes, suivi de e (98,5 %) et D (95,5 %). Les antigènes C et E sont les moins prévalents et probablement ceux contre lesquels des anticorps peuvent être formés. Le phénotype Rh le plus courant était Dce. Parmi toutes les femmes enceintes, l'alloimmunisation était présente chez 0,8 %. Parmi celles qui étaient RhD négatives, l'alloimmunisation était présente chez 16,7 %. Les femmes enceintes sont plus susceptibles de développer une alloimmunisation contre les antigènes C et E que contre les antigènes c et e en raison de leurs fréquences respectives faibles et élevées.

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**MOTS-CLÉS:** Antigènes du groupe sanguin Rh, Phénotype, Alloanticorps érythrocytaires, Femmes enceintes

<sup>1</sup>Department of Haematology, College of Medicine, University of Ibadan, Nigeria.

<sup>2</sup>Department of Biomedical Laboratory Science (Haematology and Blood Transfusion Science), College of Medicine, University of Ibadan, Ibadan.

<sup>3</sup>Department of Obstetrics and Gynaecology, National Institute of Maternal, Newborn and Child Health. College of Medicine, University of Ibadan.

<sup>4</sup>Morgan State University, Department of Information Science and Systems. oorefasola@yahoo.com

**Corresponding Author:** Dr. Foluke A. Fasola, Department of Haematology, College of Medicine, University of Ibadan, Ibadan, Nigeria. Email: folukefasola@yahoo.com