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Rh Negative Complicating Pregnancy Prevalance, Maternal and Foetal Outcome in GGH Guntur

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Abstract
INTRODUCTION
Haemolytic disease of the newborn secondary to Rhesus-D isoimmunisation contributes significantly to perinatal morbidity and mortality. There is a need for adequate counselling of pregnant women regarding the importance of detection of blood grouping and Rh typing during the antenatal period in order to prevent haemolytic disease of the newborn. The aim of this study is to estimate the prevalence of Rhesus-negative pregnancy in the antenatal women and evaluate the maternal and foetal outcome during the period of September 2019 to August 2020.
MATERIALS AND METHODS
All Rh-negative pregnant women who attended the Antenatal Clinic in Government General Hospital Guntur were followed up till delivery and also postnatally regarding the maternal and foetal outcome. All the data was collected and results were analysed.
RESULTS
The prevalence of Rh-negative pregnancies in Government General Hospital ,Guntur was 3.51(338) out of 9627antenatal cases,. Regarding neonatal outcome, 338 were live born babies, 298 wereterm and 40 were perterm
CONCLUSION
In our study, the prevalence of Rh-negative pregnancy is 3.51%. Despite the low prevalence of Rh-negative pregnancy, Rhisoimmunisation remains a determining factor responsible for perinatal morbidity.
KEYWORDS
Rhesus factor, Rhesus Negative Blood Group, Rhesus D Isoimmunisation, Haemolytic disease of newborn

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I. Introduction

Haemolytic disease of the newborn secondary to Rhesus-D isoimmunisation contributes significantly to perinatal morbidity and mortality. Maternal Rh (D) alloimmunization occurs as a result of maternal immune system exposure in Rh negative women to Rh (D) positive red blood cells of the foetus as a result of transplacental foetomaternal haemorrhage during and pregnancy, injection with needles contaminated by Rh (D) positive blood or accidental transfusion of Rh (D) positive blood. Once, anti-D Ig antibodies are present in the pregnant women's circulation, they can cross the placenta and opsonise foetal RBC, which undergoes phagocytosis leading to haemolytic disease of the foetus, newborn ranging from hyperbilirubinaemia, severe anaemia to hydrops fetalis. Unlike the ABO blood group system, there is no preformed Rh antibody; only Rh-negative individuals are sensitised to produce the Rh antibody when they are transfused with Rh-positive blood. India is a country with diversities based on race, religion and creed. Hence, diversity has been observed in the distribution of blood groups in the population. In India, the incidence of Rh-negative is 5-10%.1 Rh incompatibility can pose a major problem in pregnancy when the mother is Rhnegative and foetus is Rh-positive.

II. Objective Of The Study

The objective of this study was to estimate the prevalence of Rh-negative pregnancy in antenatal women and evaluate the maternal and foetal outcome in Rh-negative pregnancies.

III. Materials And Methods

A retrospective observational study was conducted at Government general Hospital, a tertiary care centre of Guntur Medical College, Guntur, Andhra Pradesh, for a period of one year, i.e. between October 2019 to September 2020 regarding prevalence of Rh-negative blood group in antenatal women with evaluation of maternal and perinatal outcome. Data was obtained from the inpatient register and OP register. ABO and RhD factor are part of the routine investigations during the antenatal booking of the women attending the antenatal clinics. Antibodies screening was routinely performed at booking and at 28 weeks of gestation on RhD negative women. Other information including age, previous obstetric history, transfusion history, social and family history, blood group systems of the husband or previous child of antenatal women, anti-D immunoglobulin prophylaxis administration and type of delivery, foetal outcome, baby blood group and jaundice was collected and analysed.

IV. Observations And Results

The total number of Rh negative deliveries were 338 out of 9627 deliveries conducted in Government General Hospital Guntur, during the 1 year period, i.e. between October 2019 to September 2020. Hence, the prevalence was 3.51%. Highest incidence was found in 21-25 years age group, i.e. 57.98% as many couples plan family during this age group (Table 1). In our study, 44.67% were primigravida, which predominated over other parity (Table 2). Many of the antenatal women had O negative blood group, i.e. about 55.14% (Table 3). Majority of subjects had normal deliveries, i.e. 58.28% and 36.68% delivered by caesarean section (Table 4). 97.92% had negative indirect Coombs test and only 2.07% had positive indirect Coombs test (Table 5). Out of 338 cases, 88.16% weretermand 11.83% perterm (Table 6). Majority of the babies were weighing between 2.5 to 3 kg, only six babies were weighing more than 4 kg (Table 7).0.8% of neonates had Apgar of 0-4, whereas 2.95% of neonates had an Apgar score of 5-8 (Table 8) Most of the babies had Rh-positive blood group, i.e. about 82.24% and 17.75% of babies had Rh-negative blood group (Table 9). Out of 38 babies, 24 babies had early onset of jaundice as they were Rh-positive babies needing SNCU admission (Table 10) Majority of newborn babies, i.e. about 85.02% had bilirubin levels between 10-15 mg/dL (Table 11).

Table 1. Agewise distribution of Rh-ve pregnancies

Age in years	No. of cases	percentage
15-20	73	21.5
21-25	196	57.98
26-30	54	15.9
>30	15	4.4
total	338	100

Gravida	No. of cases	percentage
Primigravida	151	44.67
G2	140	41.42
G3	42	12.42
>G4	5	1.47
Total	338	100

Table 2. Parity Wise Distribution of Rh - Negative Pregnancies

Table 3. Blood Group Wise Distribution of Rh - Negative Women

Blood group	No. of cases	percentage
A negative	64	18.93
B negative	72	21.30
AB negative	19	5.62
O negative	183	55.14
total	338	100

Table 4. Distribution of Cases by Mode of Delivery

Mode of delivery	No. of cases	percentage
Vaginal delivery	197	58.28
Outlet forceps	11	3.25
Lscs	124	36.68
Assisted breech	6	1.77
total	338	100

Table 5. Distribution of Cases by Indirect Coombs Test (I.C.T.)

ICT	No. of cases	percentage
positive	7	2.07
negative	331	97.92
total	338	100

Table 6. Neonatal Outcome in Rh - Negative Pregnancies

Neonatal outcome	No. of cases	percentage
Term	298	88.16
Preterm	40	11.83
total	338	100

Table 7. Distribution of Cases by Birth Weight of Babies

Birth Weight	No. of Cases	Percentage
<2.5kg	68	20.11
2.5-3kg	185	54.73
3.1-3.9kg	79	23.37
>4kg	6	1.77
Total	338	100

Table 8. Apgar Score in Newborn Babies of Rh - Negative Pregnancies

APGAR score	No. of case	percentage
0-4	3	0.8
5-8	10	2.95
8-10	325	96.15
Total	338	100

Table 9. Distribution of Cases by Baby Rh - Blood Group

Rh blood group	No. of cases	percentage
Rh positive	278	82.24
Rh negative	60	17.75
total	338	100

Table 10. Cause of Admission in Newborn Babies of Rh - Negative Mothers

Cause of admission	No. of cases	percentage
Neonatal jaundice	24	63.15
sepsis	1	2.63
Meconium aspiration syndrome	5	13.5
RDS	6	15.78
ABO incompatiability	2	5.78
total	38	100

Table 11.Distribution of Newborn Babies by Bilirubin Levels

Serum bilirubin	No. of cases	percentage
10-15mg/dl	176	85.02
16-20mg/dl	29	14
21-25mg/dl	2	0.96
Total	207	100

V. Discussion

In our study, the prevalence of Rh-negative pregnancy was 3.5%. Our finding was consistent with previous reports obtained in Guinea, i.e., about 4.1% Rh negative pregnancies and 95.94% RhD positive cases3 and Enugu, South East Nigeria, i.e. about 4.5% Rh-negative pregnancies.4 Other documented RhD positive rates include 96.6% by Pramanik and Pramanik.5 In Nepal, 93% by Bashwari et al6 in the Eastern region of Saudi Arabia, 97.7% in West Bengal, India.7 The prevalence of Rh-negative cases in Rajavithi Hospital was 0.31%.8 In our study, highest prevalence was found in 21-25 years age group, i.e. 57.9% as many couples plan family during this age. In our study, the most common blood group with Rh-negative phenotype was O (55.14%), followed by B (21.3%), A (18.9%), AB (5.6%). The study from Enugu, South East Nigeria, showed that the most common blood group with Rh-negative phenotype was O (64.5%), followed by A (20%), blood group B 12.1% and AB 3.2%, respectively.4 In the study by Agarwal S et al, the most common blood group with Rh negative phenotype was O (39%), A (17%), B (16%), AB (17%).1 In the present study, 44.6% were primi gravida, which predominated over other parity. Primipara constituted 48.5% of the study population in a study by Adeyemi AS et al.9 Since primipara constituted the greatest proportion of the RhD-negative obstetric population, there is need for defined protocol, which will make for proper and adequate management of this population so as not to compromise the reproductive career of these women. Nearly, 58.28% of women had normal deliveries and 36.68% delivered by caesarean section.

Many developed nations have national antenatal screening program such as the Dutch screening programme in Netherlands and in Sweden. However, in developing countries, anti-D continues to be a common alloantibody found in pregnant women. In our study, 97.92% had negative indirect Coombs test and 2.07% had positive indirect Coombs test. Regarding neonatal outcome, out of 338 deliveries , trem were 88.16% and

perterm were 88.16%.In our study, 0.8% had Apgar score of 0-4, 2.95% had 5-8 Apgar score and 96.1% had 8-10 Apgar score. In our study, out of 338 liveborn babies, 38 babies were admitted in SNCU. Out of 38 babies, 24 babies had early onset of jaundice as they were Rh-positive babies needing SNCU admission. 2 babies had bilirubin levels more than 21 mg/dL and died within 7 days of birth. In a study by a higher proportion of neonates with Rh incompatibility, had hyperbilirubinaemia within 72 hours of life. Thus, neonates with Rh isoimmunisation had significantly higher incidence of jaundice within 72 hours of life.10

VI. Conclusion

Despite the fact that the prevalence of Rh-ve pregnancy is lower <5% (in south India), Rh isoimmunisation remains a determining factor responsible for perinatal morbidity in most developing countries. Hence, the primary aim in caring for the RhD negative women is the prevention of alloimmunization. Every women should have her ABO blood group, Rh-type and antibody screen if Rh negative, checked at the first antenatal visit.

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