MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.36478/makrjms.2024.8.150.153

OPEN ACCESS

Key Words
Erythroblastosis fetalis, hydrops, HDN

Corresponding Author
Pushpa,
Department of OBGY, P.M.C.H, Patna, Bihar, India
dr.pushpa1999@gmail.com

Author Designation
[1,2] Senior Resident

Received: 20 May 2024
Accepted: 19 June 2024
Published: 13 July 2024

Citation: Anamika and Pushpa, 2024. Study Of Rhesus Negative Pregnancy Outcomes In A Tertiary Care centre. Res. J. Med. Sci., 18: 150-153, doi: 10.36478/makrjms. 2024.8.150.153

Study of Rhesus Negative Pregnancy Outcomes In A Tertiary Care Centre

[1]Anamika and [2]Pushpa
[1,2]Department of OBGY, P.M.C.H, Patna, Bihar, India

Abstract
Rh negative pregnancy is considered high risk pregnancy because it causes fetal and maternal complications due to isoimmunisation. Incidence in India is about 5-7%. To study the various maternal and fetal complications in Rh negative pregnancies. This is a retrospective study from 2017 march to 2018 february, conducted in PMCH Obs and Gynae Department on 100 Rh negative mothers. Perinatal outcome was studied in relation to mean gestational age at the time of delivery, mean birth weight, need of nicu admission, iud, still birth, hyper bilirubinemia, fetal anemia, neonatal death, etc. Total 100 women were included in the study who had incompatible mating. Out of them 68%had vaginal delivery and 32% had caesarian section. Mean birth weight of babies delivered was 2.9kg. 28% babies had low birth weight. 32% patients had preterm delivery, 64% delivered at term. 2% had postdated pregnancy, IUD was seen in 6% cases .There was 1 case of hydrops fetalis. NICU admission was required in 7% newborns, 4% newborns had neonatal anemia, 10% newborns developed neonatal jaundice. 4% neonates required phototherapy, 1% required exchange transfusion. Rh isoimmunisation is a preventable cause of fetal morbidity and mortality. Proper counseling, timely screening, proper fetal and neonatal monitoring, timely intervention and anti D IgG prophylaxis decreases the burden of the disease.

INTRODUCTION

Landsteiner in 1940 discovered Rh system[1,2] Rh positive or Rh negative blood group was classified according to presence or absence of RhD antigen in red blood cells. Rh incompatibility between pregnant mother and fetus leads to maternal isoimmunisation with placental transfer of IgG antibodies which is responsible for fetal red cell destruction. 90% of all cases of erythroblastosis fetalis are caused by maternal antibodies directed against the Rh D Antigen present in fetal red cells[3]

Husband's genotype tested when Rh negative wives become pregnant, which can be homozygous or heterozygous. This helps in predicting whether the subsequent babies will be incompatible and liable to be affected or not.

During normal pregnancy fetal RBCs crosses placenta in 5% cases in first trimester and 46% cases by the end of third trimester. Passage of fetal blood into maternal circulation is almost universal at the time of parturition but only about 10-15% mothers who carry Rh positive fetus becomes sensitized[4]

Aims and Objective: To study the maternal and perinatal outcome in Rh negative pregnancy.

MATERIALS AND METHODS

This is retrospective study from 2017 march to 2018 Feburary, conducted in PMCH Obs and Gynae Department on 100 Rh negative mothers.

100 pregnant women with incompatible mating were included irrespective of their age, parity, gestational age and administration of Rh Anti D Ig in previous and present pregnancy. If indirect coombs test titre is found positive, direct coombs test and cord blood was collected.

Perinatal outcome was studied in relation to mean gestational age at the time of delivery, mean birth weight, need of NICU admission, IUD, neonatal death, need of phototherapy and blood transfusion.

RESULTS AND DISCUSSIONS

Among the total 6626 deliveries, 378 women were Rh negative and 100 women who had incompatible mating were included in this study.

33% women belonged to 18-22 years, 50% belonged to 23-26 years, 12% belonged to 27-30 years and 5% were above 30 years.30% women were primigravida ,40% women were G2,23% were G3 and rest 7% had parity >3. The incidence of early preterm was 10% and late preterm was 22%.64% women came between 37-42 weeks and 2% after 42 weeks.3% had history of more than 1 abortion.2% had history of previously affected baby.3% women had history of blood transfusion.26% women had received anti D in the past pregnancies. Obstetric complications occurred in 10 % of women. Pregnancy induced hypertension occurred in 5% cases. Oligohydramnios occurred in 1% women. PROM occurred in 3% cases.4% women had post partum haemorrhage.

Morbidity and mortality. Universal screening of ABO and h D in all pregnant women should be done. If blood group is negative, husband's blood grouping should be done. If positive, indirect coombs' test should be done to diagnose antibody titre. Genotyping of fetus can be done non-invasively by cell free fetal DNA in maternal plasma. Fetal anemia can be monitored with USG of MCA.

Recommended antenatal and postnatal prophylaxis should be taken to prevent isoimmunisation. RAADP (routine antenatal Anti D prophylaxis) 2 doses / single dose regimen has shown to reduce the risk of alloimmunisation from 0.95% to 0.35%. In experienced hands IUT for RBC-alloimmunisation is a safe procedure in this era. Patients should be referred to specialist centres prior to the development of hydrops. After delivery baby's blood group, haemoglobin, DCT, S. bilirubin and reticulocyte counts should be done to monitor the baby postnataly. So that baby can get early treatment for raised S.bilirubin.

With all these measures, and by spreading awareness and educating the women regarding the situation and emphasizing the importance of ANC, we can decrease the burden of disease in India. In India, the high cost of immunoglobulins and lack of supply by Government of India amounts for significant risk of a distressing obstetric problem which is still seen in large number in India. It is a single most common but preventable cause of HDN and also an important cause of neonatal hyperbiliriubinemia. FOGSI recommends a single dose of 300 mcg at 28 weeks followed by post-natal prophylaxis by 300 mcg as soon as possible if the baby in Rh positive and DCT is negative and 100 mcg anti-D after the sensitizing event of the first trimester. This postpartum anti-D dose is sufficient enough to neutralize 30 ml of fetal blood. The present study was undertaken to show the burden of HDN due to Rh incompatibility, which is a preventable condition. In our study incidence of Rh-ve pregnancy was 5.74% whereas it was 2.4% in study performed by Mandal[5] This may be because our hospital is a medical college tertiary centre where high risk cases are referred.

In the present study, 33% belonged to age group 18-22 years followed by 50% in 23-26 years age group. This scenario was most probably due to early marriage and early childbearing among the Indian population. In present study, 100 rhesus negative antigen.

Table 1: Maternal Details

	No. of patients(n = 100)	Percentage
Age group		
18-22 yrs	33	33
23-26 yrs	50	50
27-30 yrs	12	12
>30 yrs	5	5
Parity		
G1	30	30
G2	40	40
G3	23	23
>3	7	7
Gestational Age		
<34 weeks	10	10
34-37 wks	22	22
37-42 wks		
>42 wks	64	64
	2	2
History of Abortion		
1	6	6
>1	3	3
H/O previously affected baby	2	2
H/O Blood transfusion	3	3
H/O receiving anti-D		
in past pregnancy	26	26
Associated obstetric complication	PIH-5	5
	Oligohydramnios -1	1
	PROM-3	3
	PPH-4	4

Table 2: Foetal Outcome.

Perinatal outcome	No. of patients
Healthy baby	79
LBW	7
Nicu Admission	7
IUD	6
NND	2
Need of Blood Transfusion	1
Early Neonatal Jaundice	10
Need of Phototherapy	4

pregnant women were studied. Among all 30% were primigravida, 40% were second gravida, 23% were third gravid and 7% were multigravida. Previous history of miscarriage was found in 9% which is comparable to study done by Shreelatha[6] Previous H/O blood transfusion was in 3% patients in comparison to 4.5% in Bondagi[7]

In our study 6% patients had Indirect coombs test positive which is higher than 1.7% of Shreelatha S et al and 2% of Preethi[6,8] This may be due to high incidence of unsupervised deliveries at home and lack of universal anti-D prophylaxis in our part. birth, 64% were term birth and 2% were post-term birth. Perinatal outcome in 100 patients was 79% were healthy, NICU admission were 7%, 1 case was of hydrops fetalis and 2% were NND.IUD occurred in 6% cases which was nearly similar to study by Kureba[9] These cases could be prevented with availability of non-invasive msv Doppler monitoring of sensitized pregnancies with high titre.

One baby required blood transfusion, 10 baby had early neonatal jaundice while 2 needed phototherapy, 1 baby required exchange transfusion.

CONCLUSION

Rhesus isoimmunisation is a preventable cause of fetal isoimmunisation. Family planning should also be encouraged for immunized women, since the severity of haemolytic disease increases with increasing parity.

REFERENCES

1. Shradha, B. Moitra, A. Kumari and P.B. Sahay, 2016. 1. Obstetrical and Perinatal Outcome in Rhesus Antigen Negative Pregnancy. Int J Sci Stud., 3: 124-129.
2. Landsteiner, K. and A.S. Wiener, 1940. An agglutinable factor in human blood recognized by immune sera for rhesus blood. Exp. Biol. Med., Vol. 43 .10.3181/00379727-43-11151.
3. Levine, P. and R.E. Stetson, 1939. An unusual case of intra-group agglutination. J. Am. Med. Assoc., 113: 126-127.
4. Bowman, J.M., J.M. Pollock and L.E. Penston, 1986. Fetomaternal transplacental hemorrhage during pregnancy and after delivery. Vox Sang, Vol. 51 .10.1111/j.1423-0410.1986.tb00226.x.
5. Mondal, B., S. Maiti and B.K. Biswas,et al., 2012. 1. Prevalence of hemoglobinopathy, ABO and rhesus blood groups in rural areas of West Bengal, India. J Res Med Sci., 17: 772-776.
6. Sreelatha, S., V. Ambastha and S. Chaitra,et al., 2017. Maternal and neonatal outcome in rhesus positive women in a tertiary care centre. Moj Wom Heal., 5: 202-204.

7. Bondagji, N.S., 2011. 1. Rhesus alloimmunization in pregnancy. A tertiary care centre experience in the western region of Saudi Arabia. Saudi Med J., 32: 1039-1045.
8. Preethi, S.I.,et al., 2020. Rh Negative Complicating Pregnancy Prevalance, Maternal And Foetal Outcome In GGH Guntur.(IOSR-JDMS). IOSR J Dent Med Sci., 19: 12-15.
9. Kureba, A.A., W. Gudu, A. Mersha, E. Jemal and A.A. Abdosh, 2023. Perinatal outcome of pregnant women with rhd sensitization: A five-year cross-sectional study at a tertiary care hospital in Ethiopia. Int. J. Women's Health, 571-578.