Original Article

Effect of Rhesus Negative in Pregnancy

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Abstract

Hemolytic disease of the newborn due to Rh-isoimmunisation is a major cause to perinatal morbidity & mortality. Erythroblastosis fetalis is a disease of fetus and newborn due to incompatibility between fetal and maternal blood group. Diagnosis and therapy for Rh immunization improved considerably. Its prevention by immunoprophylaxis has been responsible for the reduction in the incidence of perinatal mobility. Still Rh immunization and erythroolastosis fetalis is responsible for many obstetric mishaps in our country. To see the pregnancy outcome of Rhesus negative women. This prospective study was carried out from October 2013 to March 2014 in Obstetrics & Gynecology department of Sylhet MAG Osmani Medical College & Hospital, Sylhet. 50 Rh-negative pregnancies were selected those who got admitted in department of Obstetrics & Gynecology, SOMCH. 30.62% of the fetuses had blood group B+ve, 24.40% 0+ve and 20.40% A+ve. Regarding the perinatal outcome 76% were healthy, 4% still birth, 4% neonatal death, 14% with erythroblastosis foetalis and 4% developed hydrops. Mild anaemia and oedema was common in primi and multigravida patients. PET was found 6.2% in multigravida patients. APH and Hydramnios with congenital anomalies were 3.1% and 3.1% respectively. This study was undertaken to evaluate the outcome of pregnancy in Rh -ve women. It is preventable. Primary prevention of isoimmunization by giving combined antenatal and postnatal prophylaxis.

Keywords: Outcome, Pregnancy, Rhesus Negative.

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Introduction

Fetus inherits antigenic determinats both from father & mother. Rh antigen on the surface of the red cell may cause hemolytic reaction when Rh negative mother bears Rh positive fetus Fetomaternal ABO incompatibility is clinically more important because it causes disease of greater severity. (Froster J. 1996)[1]. In the past, Rh incompatibility used to be a very serious problem. Affected newborns were gravely ill or died from Rh disease. Of all infants 10-20% dies in utero or in the early neonatal period before effective therapy possible. 50% of affected infants need treatment during neonatal period (Contreras M. Lubinco A. 1991)[2]. In the developed countries incidence of morbidity and mortality due to Rh incompatibility in pregnancy is greatly reduced due to prenatal Rh screening, obtaining maternal antibody titre, ultrasound guided amniocentesis. Rh immunoprophylaxis, and postnatal emergency care by umbilical cord blood transfusion for erythroblastosis fetalis, hydrops fetalis or kernicterus (Salem, 2005)[3]. Anti-D has been routinely use as postpartum prophylaxis since 1968 in Canada, and routine ante partum prophylasis was introduced in 1976. (Fung KF, Eason E. Crane J. Ronde S. Armos, Willson D. 2003)[4]. In a developing country most of the fetal and neonatal deaths due to Rh incompatibility remains undiagnosed, 2% of women are at risk of becoming Rh immunized after having sopntaneous or therapeutic abortions. The risk grows by 2.5 fold after 20 weeks. A blood sample should be taken from every women at her first antenatal visit for Rh blood grouping and antibody screening (Kausar 2005)[5].

Materials and Methods

This study was a hospital based prospective cross-sectional study, carried out in IPD (inpatient department) of Obstetrics and Gynecology of Sylhet M.A.G Osmani Medical College and Hospital, Sylhet in between October 2013 to March 2014. Total 50 cases were enrolled in this study. Data was collected by using a preformed questionnaire and check list. Cases were selected according to inclusion and exclusion criteria. Relevant infromations (according to questionnaire) were taken from patients. After data collection all data was entered in master sheet and Statistical analysis were carried out by using the Statistical package for Social Sciences version 16.0.

Results

In SOMCH 203 Rh negative patients out of 7150 obstetrics patients who were admitted from October 2013 to March 2014, giving the incidence of 2.83%. Among them 50 cases were included in this study. Table I shows most of the patients (62%) belong 21-30 years and their mean age found was 25.5 years with range from 18-36 years.

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Table-I: Details of patients (age and parity distribution) (n=50).

Age (in years)	Numbers of patients	Percentage
≤20	11	22
21-30	31	62
31-36	8	16
Mean	25.5	
Range (min-max)	18-36	

Table-II (A) shows 36% of the patient were B^{-ve}, 30% of the patients were A^{-ve}, 24% of the patients were O^{-ve} ,10% of the patients were AB^{-ve}.

Table-II: (A) Blood group of the patients: (n=50).

Blood Grouping & Rh Typing	Number of patients (n=50)	Percentage
B^{-ve}	18	36
A^{-ve}	15	30
O^{-ve}	12	24
AB^{-ve}	05	10

Table-II (B) shows 98% of the husband's blood group were Rh^{+ve} and 2% were negative.

(B) Husband's blood Group:

Blood Grouping & Rh Typing	Number of patients (n=50)	Percentage
B^{+ve}	16	32
O^{+ve}	15	30
A^{+ve}	12	24
AB^{+ve}	06	12
A^{-ve}	01	02

Table-II(C) shows 81.61 % of the newborn babies were Rh^{+ve} and 18.37 were Rh negative.

(C) Blood group of the fetuses:(detected from the cord blood sample).

Blood Grouping & Rh Typing	Number of patients	Percentage
B+ve	15	30.62
O+ve	12	24.49
A+ve	10	20.40
AB+ve	03	6.12
B-ve	03	6.12
O-ve	02	4.08
A-ve	03	6.12
AB-ve	01	2.04

Table-III Shows the no. of primi and multigavida patients who came with complication in this current pregnancy.

Table-III: Complication in current pregnancy: (n=50).

Complications	Primi		Multi		Total	
	n	Percentage	n	Percentage	n	Percentage
Anaemia						
Mild	8	16	22	44	30	60
Moderate	04	8	04	8	08	16
Severe	01	2	02	4	03	6
Oedema	09	18	15	30	24	48
Mild	02	4	02	4	04	8
Moderate						
APH	00	0	01	2	01	2
Hydramnos with congenital anomaly	01	2	01	2	02	4
IUD	01	2	02	4	03	6

Table-IV shows 2% Spontaneous abortion, 32% vaginal delivery and 58% Caesarean section.

Table-IV: Mode of termination of pregnancy.

Delivery	Primi		Multi		Total	
	n	Percentage	n	Percentage	n	Percentage
Spontaneous Abortion			1	2	1	2
Spontaneous Vaginal delivery	07	14	09	18	16	32
Induced VD	03	6	03	6	06	12
Caesarean section	08	16	21	42	29	58

Table-V shows 76% healthy baby, 10 % developed jaundice and 4% neonatal death.

Table-V: Outcome of baby.

No. of patients	Health baby	Abortion	Stillbirth	Jaundice (mild)	Born with Erythroblastosis	Developed Hydrops	Neonatal death
pimigravida.	17	0	01	05	0	0	0
multigravida	21	01	01	0	07	02	02
Total	38	01	02	05	07	02	02
percentage	(76%)	(2%)	(4%)	(10%)	(14%)	(4%)	(4%)

Table-VI shows Increase antibody titre increase adverse outcome of foetus.

Table-VI: Antibody titre during current pregancy and outcome of the baby (in immunized pregnancy).

Antibody titre	No. of case	Outcome of baby in current-pregnancy
1:4	01	Health baby slightly enteric on 3rd day
1:8	02	Squired exchange transfusion once
1:16	02	Required exchange transfusion twins
1:32	01	Required exchange transfusion twins
1:64	02	I baby wash healthy as blood group was Rh negative.
1:128	02	Required exchange transfusion three times and died neonatally.
1:256	02	I intrauterine death due to Hydrops.
		I Developed hydrops and died within I hour of delivery

Discussion

A total number of 50 pregnant patients with Rh negative blood group who admitted in department of obstetric and gynaecology, Sylhet MAG Osmani Medical College & Hospital, during the period of October 2013 to March 2014 were included in this study. The present study findings were discussed and compared with previously published relevant studies. The study of M. Rahman (1978)[6] showed that the incidence of Rh-ve blood group in general population were 2.56% where as the incidence of Rh negative pregnant patients in present study was 2.84% which was higher. Another study made by Dr. Fatema (1986)[7] showed even higher incidence which was 3.6% at BSMMU. Analysis of husband's blood group showed the incidence which was almost similar to that of general population (M. Rahman 1978)[6]. Labour and fetal outcome was not significantly different from other normal pregnant patients. Hemolytic disease of the fetus and newborn due to Isoimmunization now accounts for only 4-5 deaths per 1000,000 births in USA[8]. In the present study the fetal outcome in sensitized patients showed that overall fetall loss due to Rh immunization was 14% which was nil in the primigravid patients, Incidence was higher because of lack of facility for neonatal management. According to the Bowman[9] work about 17% of Rh negative women become isoimmunized without preventable measures after the delivery of her first child (Harrod et al 2003)[10]. This number is very high possible because the sample size was small and most of the immunized patients had history of repeated unprotected deliveries. About the complication in the current pregnancy of these study patients it was observed that mild anaemia and oedema was common in primi and multigravida patients. Mild anaemia was found 44.4% in primi and 68.7% in multigravida patents. Mild oedemia was 50% and 46.8% in primi and multigravida patients respectvely. APH was found 3.1% in multigravida

patients but not found in primipara group. Hydramnions with congenital anomaly was found 3.1% in multigravida patients but not found in primipara patients, which was compitable with study of Roman[11]. Neonatal deaths and morbidity due to Rh sensitization have decreased dramatically since the introductions of Anti-D immunoglobulin According to the Centre for Disease Control and prevention, the incidence of HDN was 40.5 per 10,000 births in 1970. Today, the incidence has dropped to less than 5 cases per 10,000 birth. Despite the marked success of lgG, postpartum only administration has resulted in a failure rate of 1% to 2%. Routine antenatal prophylaxis reduces the rate of sensitization during pregnancy to 0.2%. Trolley found no alloimmunization with anit-D 300 microgram, compared to 1.9% sensitized with no anti-D at 28 weeks. Tovey compared anti-D 100 microgram at 28 and 34 weeks to a cohort without antepartum prophylaxis, and found 02% treated and 1.4% untreated women become alloimmunized later. This study 5.5 failure rate. The likely reason for this high failure rate was that out of 32 patients to whom anti-D was given only 20 patients visited. Also, given dose of lgG was possibly inadequate for the volume of feto-maternal hemorrhage[12,13,14].

Conclusion

Although Rh isoimmiminzation and erythroblastosis fetalis due to Rh incompatibility has now become a preventable disease. Yet the problem of Rh negative pregnant patients still remains as a major problem for poor developing country like Bangladesh. This is because most of our patients do not get any antenatial advice and facility for hospital delivery. To make it a real success there must be awareness about the problem of Rh negative blood group in the general population.

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