A Study on Fetal and Maternal Outcome of Pregnancies with Jaundice

Begum MS,[1] *Mohsin M,[2] Begum K[3]

Jaundice is a quite common medical problem that complicates pregnancies and glooms their outcomes by increasing morbidity and mortality of mothers and babies. Data regarding the magnitude of this problem in Bangladesh is scarce. The present observational study included 56 Pregnant mothers with jaundice, admitted in the obstetric department of DMCH, Dhaka, Bangladesh, during October 2005 to September 2006, and was undertaken to see the fetal and maternal outcomes of these jaundiced pregnancies in terms of maternal death, development of PPH, preterm delivery, perinatal death including the causes of jaundice in these pregnancy. Role of ANC on these outcomes was also seen. Result shows that jaundice in pregnancy is common in low socio-economic group (53%) and most commonly caused by Viral Hepatitis (48%) among which Hepatitis E virus being most common (66.66%) infection. More than two thirds (70%) of jaundiced mother proceeded to preterm labor. Development of PPH was quite high (70%). Maternal death rate was alarmingly high in jaundiced mothers (16%), which was mostly contributed by Fulminant Hepatic Failure (FHF) (50%) followed by PPH (25%). Among 57 babies of this study, 23(40.35%) died in Perinatal period, mostly due to complication of prematurity. It was seen that outcome of the pregnancies with jaundice was better in the group who had ANC than in the group who had not. Maternal mortality was 5(31%) in mothers who took ANCs in contrast to 11(69%) in the mothers who did not. Perinatal deaths were only 8(35%) in ANC group versus 15(65%) in non-ANC group.

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Introduction

Jaundice is a quite common medical problem seen concurrently with pregnancy. It occurs rather more frequently in pregnant women than in non-pregnant. Jaundice in pregnancy is more common in developing countries than in developed ones. About 11% of 4,703 maternal deaths were due to Jaundice in pregnancy and its complications, in a large multi-centric study in India.[1] Again it is commoner in poorer group than in affluent segment of society. Fetal loss is very high, ranges from 20% to 70% in pregnancies with Jaundice.[2] Jaundice in pregnancy is a recognized cause of post partum hemorrhage (PPH), Fulminant Hepatic Failure (FHF) leading to significant morbidity and mortality of mother and fetus. But data regarding incidence and prevalence of Jaundice in pregnancy, its cause, its ultimate implications on mother and fetus is lacking in our country.

1. *Dr. Mosammat Shahina Akhter Begum, Medical Officer, Institute of Health Technology, Dhaka.*
2. **Dr. Mohammad Mohsin, Associate Professor, Pediatrics, Shaheed Syed Nazrul Islam Medical College, Kishoreganj, Bangladesh. drmohsin703@gmail.com*
3. *Professor Dr. Kohinoor Begum, Head of the Department of Obstetrics and Gynecology, Dhaka Medical College, Bangladesh.*

**For correspondence*

Jaundice is clinically recognized when Serum Bilirubin level is more than 2 mg/dl. Jaundice in pregnancy occurs due to several infectious and noninfectious causes. Of them viral hepatitis is the commonest and complicates about 0.2% of all pregnancies.[3] Viral hepatitis alone is responsible for 70% to 80% of all jaundice in pregnancy.[1] It can also be caused by Intra-hepatic Cholestasis of Pregnancy, Choledocholithiasis, HELLP Syndrome (Hemolysis, Elevated Liver enzymes and a Low Platelet count), Severe Pre-Eclampsia and Acute Fatty Liver of Pregnancy.[4]
Among the viral agents causing Jaundice in pregnancy, most common are Hepatitis A virus (HAV), Hepatitis B virus (HBV), Hepatitis E virus (HEV), Hepatitis C virus(HCV), Hepatitis D virus (HDV), Epstein Barr virus (EBV), Cytomegalovirus (CMV), Herpes simplex virus (HSV). Clinical manifestation of all form of viral hepatitis are more or less similar. Jaundice in Pregnancy due to viral hepatitis is more common in malnourished women living in poor hygienic conditions and tends to occur more commonly in last trimester while end result is more likely to be fatal. Jaundice in 1st trimester is most commonly due to viral hepatitis. It also occurs due to hepatotoxic drugs, septicemia, cholelithiasis and choledocholithiasis. The causes of Jaundice in the second trimester are similar to those in 1st trimester, although septicemia is rare and billiary tract disease becomes more prevalent in 2nd trimester[5]. In the third trimester, the cause of Jaundice differs somewhat from those observed in early pregnancy. They include Viral Hepatitis, Intrahepatic Cholestasis of Pregnancy, Drug-induced Hepatitis, Eclampsia, HELLP Syndrome and Disseminated Herpes.[5]

Hepatic failure is seen exclusively in 3rd trimester of pregnancy when the disease may follow a fulminant course. It is more common in Hepatitis caused by HEV. There is increased incidence of PPH, Hepatic Precoma and Coma, infection and Hepatorenal Syndrome. All these lead to increased maternal morbidity and death. However, the most common causes of maternal death are PPH (due to coagulation failure) and Hepatic Failure.[6]

The course of most viral hepatitis is unaltered by pregnancy. However, a more severe course of viral hepatitis in pregnancy has been noted in patients with Hepatitis E and Disseminated Herpes Simplex Virus infection.[7]

This study regarding Jaundice with pregnancy plans to observe the outcome of Pregnancies with Jaundice in terms of PPH, Hepatic Encephalopathy, Maternal Mortality, Premature Birth and Perinatal Death.

Methods

This observational study was carried out among 56 Pregnant women with Jaundice, aged 16 to 40 years, admitted in Obstetrics department of Dhaka Medical College Hospital Bangladesh during October 2005 to September 2006, to see whether jaundice in pregnancies significantly increases the adverse fetal and maternal outcomes in terms of postpartum hemorrhage (PPH), maternal mortality, preterm birth and Perinatal death. Cases were evaluated for 3 viral markers (HBs Ag, Anti HAV IgM, Anti HEV IgM), LFTs, Platelet count among other relevant clinical examination and laboratory tests. Outcome of the mothers and their newborns were analyzed in terms of PPH, Pre-term birth, maternal death, perinatal death. Impact of Antenatal Care (ANC) and socio economic condition on outcome of pregnancies with jaundice were also assessed in this study.

Results

A total of 56 cases of Pregnancy with Jaundice admitted in the department of Obstetrics and Gynecology, Dhaka Medical College Hospital during October 2005 to September 2006, were selected. Three viral serological markers (HBsAg, Anti HAV IgM and Anti-HEV IgM) along with liver function tests and platelet count were used to detect the etiological agent for jaundice in this study group.

Finally, the outcome of the mother and fetus were evaluated in terms of PPH, preterm delivery, maternal death, perinatal death. Percentages of different categories were calculated and the results were presented in tables, figures, charts.

Study shows that out of 56 patients with jaundice in pregnancy most (41.07%, n=23) were from 21-25 age group, least affected (7.14%, n=4) were from 31-35 age group, none from 36-40 age group. Pregnant women from poor income group were mostly affected by jaundice (53.6%, n=.30) in contrast to average income group (37.5%, n=21) and rich group (9%, n=5). More than 80% (n=45) women with jaundice in pregnancy were admitted with <37 weeks of gestation, most were with their 1st pregnancy (43%, n=24) in contrast to 2nd pregnancy (25%, n=14), 3rd pregnancy (20%, n=11), 4th gravida or more (12.5%, n=7).

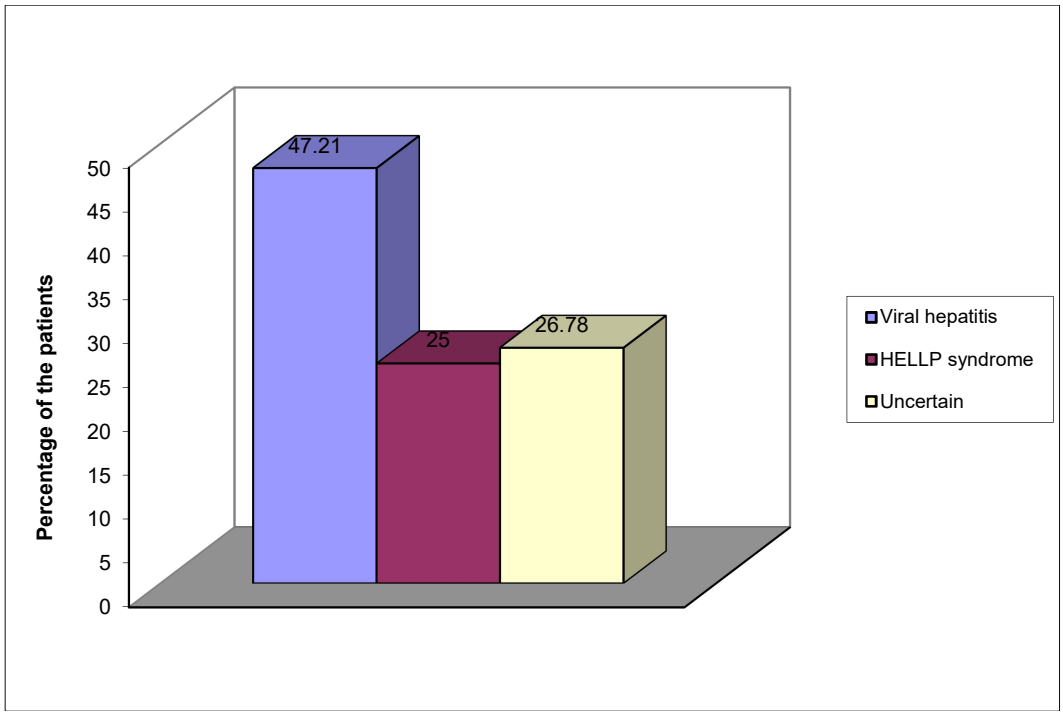

Fig.1. Bar-chart showing distribution of patients according to etiology

Etiological analysis shows (Fig.1) jaundice in pregnancies were mostly due to Viral Hepatitis (47.57%, n=27), followed by HELP Syndrome (25%, n=14) while causes could not be ascertained in 15 (27.43%) cases. Among 27 Viral Hepatitis in this study maximum (66.66%, n=18) were due to Hepatitis E Virus (HEV) followed by Hepatitis B Virus (HBV) (14.8%, n=4), Hepatitis A Virus (HAV) (11.1%, n=3), HEV & HBV co-infection (7.4%, n=2). Test for HCV and HDV were not done. (Table I)

Table I: Distribution of patients according to specific virus (n=27)

Name of virus	No. of patients	%
HBV	4	14.81
HEV	18	66.66
HAV	3	11.11
HEV+HBV	2	07.40
Total	27	100

Out of 56 pregnancies with jaundice including 1 twin pregnancy newborns were well in 32 (56%) cases, succumbed to Perinatal death in 23 (40%) cases, while 2 (4%) cases were aborted. (Table II).

Table II: Fetal outcome

Fetal outcome	No. of fetuses	%
Well	32	56
Perinatal death	23	40
Early fetal loss (abortion)	2	4
Total	57	100

Among 23 Perinatal deaths highest 13 (56%) were Intra-uterine death (IUD), 5 (22%) were Still-born (SB), rest 5(22%) died within 7days of birth (Early neonatal death - END). Of these 23 neonatal deaths 18 (78%) were preterm, rest 5 (22%) were full term.

Among 56 women with jaundice in pregnancy 39(70%) were in labor and gave birth with 24 hours of admission.

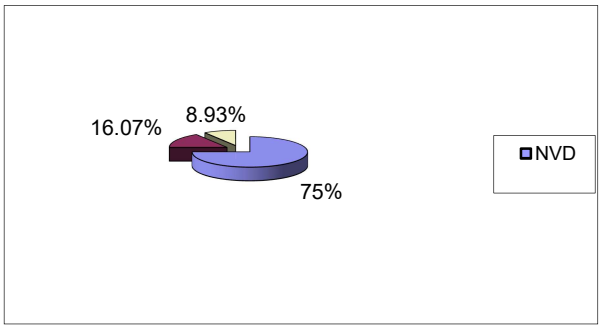

Fig. 2. Mode of Termination of Pregnancy

Figure 2 shows that out of 56 pregnancies with jaundice majority, 42(75%) delivered per-virginally, 9(16%) by LUCS, rest 5(9%) were terminated by other modes (3 by vacuum suction and 2 required dilatation and curettage - D&C for missed abortion).

Discussion

Jaundice in pregnancy has always been a major medical problem complicating pregnancies in a developing country like Bangladesh. Unfortunately there is little published data in Bangladesh concerning the maternal and fetal outcome in pregnant mothers with jaundice.

The current study was undertaken to evaluate the fetal and maternal outcome of pregnancies with jaundice in DMCH, Dhaka, Bangladesh. Any association of jaundice in pregnancy with age, parity, economical class, antenatal check up and gestational age of mother was tried to find out. Maternal and fetal outcome, especially in terms of PPH, maternal death, preterm births, perinatal deaths were assessed. The findings of present study were discussed and compared with relevant studies done and published in this country and abroad.

Age of 56 mothers included in this study was from 16 to 40 years. They were divided into four age groups. Most of the patients (67.85%) were from 15-25 yrs age group. The highest affections (41.07%) were in 21-25 yrs age group which is more or less near to a study done by Maruf Siddiqui in Bangladesh[9] in which the rate of affection in the same age group was 52.5%.

Total 56 patients of current study were divided into 3 groups by their socioeconomic condition. In this study most of patients were either from poor (about 54%) or average socioeconomic group (37.5%). This is probably due to fact that poor hygienic

condition often co-exists with poor socioeconomic condition.

This study shows that about 80% of pregnant women with jaundice went in to preterm labor. This finding is consistent with findings of Kumar, Beniwal and Sharma et al. 2004[10] from India (about 66%) and with study done by Maruf Siddiqui, 2005[9] in Bangladesh in which 72.5% of jaundiced women went into preterm labor.

Viral hepatitis was the principal etiological agent for jaundice in 27 (67%) pregnant ladies among 41 cases tested for viral markers. Rest 15 could not be tested for viral markers for financial and time constraints. Next common cause of jaundice in pregnancies was HELLP syndrome (14 cases, 25%) in this study.

The viral hepatitis cases were further, subdivided on the basis of viral markers done by ELISA method. The present study shows that approximately 66% patients were infected with hepatitis E virus (HEV), 14.81% with hepatitis B virus, 11.11% had HAV, 7.4% patients had both HEV & HBV virus.

Giri and Maity (1992)[1] reported in India that viral hepatitis was the commonest etiological agent (80%) of jaundice in pregnancy which is more or less close to the finding of the present study (67%). In another study in India by Kumar et al. 2004[10], prevalence of HEV infection was 45.2%, Jaishal et al. (2001)[11] reported HEV prevalence was 57.5% in India.

In Saudi Arabia Khuroo and Kamili 2003[12] reported in their study that prevalence of HEV infection in pregnant women was 85%. The prevalence of HEV infection 66% in the current study reflects the more or less the same situation in Bangladesh.

In this study out of 57 babies (one mother gave birth to twin baby) a high proportion i.e. 23 (about 40%) died in Perinatal period. These Perinatal deaths include 13(56.5%) IUD, 5(21.7%) Still Births, 5(21.7%) Early Neonatal Deaths (END). Most of the ENDs were due to complication of prematurity.

A comparable study done in Pakistan by Aziz et al (1997)[13] reported a Perinatal mortality of 30%. Sankar, Giri and Maity reported a Perinatal mortality of 41% in India[1], in a study of with same kind of patients while Medhat and his colleagues in Egypt (1993)[8] found a Perinatal mortality of 27% neonates of the mothers with jaundice in pregnancy.

Maruf Siddiqui[9] (2005) reported Perinatal death rate as 44% in a kindred study in 2005 in Bangladesh. Perinatal mortality of the studies cited here are more or less similar to the rate of present study (40%) while De-Silva et al. found a much lower Perinatal mortality in an akin study in Srilanka.[14] Out of 56 patients of this study 39(70%) patients developed primary PPH and among them 4 mother died due to PPH.

Among 56 jaundiced mother of this study 16 (29%) died of different complications of jaundice in their pregnancies. Eight (50%) died of hepatic failure, 4(25%) died due to PPH. Pulmonary edema and renal failure tolled 2(12.5%) lives each. In Pakistan Aziz, Hamid, Iqbal et al. in 1997[13] reported a maternal mortality of 15% in pregnancy with jaundice. De Silva, Jayawardena, and Pethiyagoda et al.[14] in 1993 reported a maternal mortality of 12.5% in Srilanka.

So maternal death rate is much higher in the current study (29%) in comparison to the instances shown in Pakistan (15%) and Srilanka (12.5%). These higher death rate may be due to the fact that current study includes a high number of HELLP syndrome (n=14, 25%) and late arrival of the PPH cases which took high tolls of lives.

In the present study impact of Antenatal Care (ANC) on the outcomes of pregnancies with jaundice was also assessed. Result shows a positive impact of ANC. Maternal deaths were much less, 5 (31.25%), in the mothers who received antenatal checkup than in those who did not, 11(68.75%). Maternal death due to PPH was just one fourth (25%) in ANC group in contrast to non-ANC group (75%). Perinatal death tolls are also almost double (65.21%) in non-ANC group than in ANC group (34.70%). But ANC could not reduce the incidence of PPH in jaundiced mothers. Rather PPH was found more frequently in ANC group, 25(64%) than in non-ANC group,14(36%).This higher rate of occurrence of PPH in ANC group may be due to the fact that mothers who were under regular ANC are more likely to come for delivery in this tertiary hospital while a larger number of mothers dies in community due to PPH as a result of jaundice in pregnancy or they are treated for PPH in primary and secondary level hospitals, as they cannot be picked up for referral at proper time due to lack of ANC. Analogous data regarding impact of ANC on outcome of pregnancy with jaundice are not available currently in Bangladesh or abroad.

Conclusion

Observational study done with 56 pregnant mothers with jaundice shows that jaundice in pregnancy mostly occurs in poorer socio-economic group and mainly caused by viral hepatitis, hepatitis E virus being commonest followed by hepatitis B virus. Most pregnant mother with jaundice undergoes preterm labor; perinatal death rate is very high (56%), mostly due to complication of prematurity. Maternal death rate is also alarmingly high (29%) mainly due to fulminant hepatic failure followed by postpartum hemorrhage (PPH). Antenatal care cannot reduce the incidence of PPH but can decrease maternal death and perinatal deaths due to jaundice in pregnancy.

Present study findings suggest bigger multi-centric studies to assess the magnitude of problem of Jaundice in pregnancies in Bangladesh. Authors recommend to strengthen ANC including screening for Hepatotrophic viruses and early detection of mother with jaundice in pregnancies, develop simple protocol for treatment of Jaundice in pregnancies at District Hospitals.

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