

## Balloon Temponade to Prevent Primary PPH in Jaundice-A Prospective Study

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### Summary:

*This prospective interventional study was carried out on 40 intrapartum jaundice patients admitted in the Department of Obstetrics and Gynaecology, Dhaka Medical College Hospital during January to December 2004. The purpose of the study was to evaluate the effectiveness of prophylactic intrauterine hydrostatic balloon/condom temponade in addition to other conventional methods to prevent and control postpartum haemorrhage in patients with jaundice, to detect the*

*prevalence of different etiological agents responsible for jaundice and to assess the foeto-maternal outcome in this study group. Prophylactic intrauterine hydrostatic balloon temponade was inserted in all of the 40 cases which showed an excellent effectiveness in preventing postpartum haemorrhage in patients with jaundice. The study also showed increased prevalence of Hepatitis E virus(HEV) and a high proportion of perinatal deaths in the study population.*

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### Introduction:

Jaundice in pregnancy has always been a major obstetric problem in a developing country like Bangladesh. Unfortunately, the magnitude of this disease is yet to be explored in our country. Most of our female population of reproductive age are not vaccinated against the hepatitis B virus. Data from two teaching hospitals reveal that enterically transmitted hepatitis A and E are also endemic in the country<sup>1</sup>, attaining an exaggerated proportion in rainy season, especially in flood-affected areas. Only a few laboratories in this country have the complete diagnostic facilities to detect all types of hepatitis viral infection, the cost of investigation is also high, so it is a financial burden for most of the patients.

Haemorrhage during the third stage of labour is a matter of grave concern in almost all pregnancies with jaundice. The bleeding is partly due to uterine atony, but mostly due to the deficiency of coagulation factors produced by the damaged liver. Excessive bleeding during the third stage usually precipitate

hepatic pre-coma or coma and further deteriorate the condition of the patient. Prognosis of hepatic failure is extremely poor in this group of patients. Inj.Oxytocin, Inj.Ergometrine, per rectal use of tab.misoprostol along with gentle massage of the uterus are the important parameters for reducing third stage bleeding. Prophylactic use of intrauterine hydrostatic Balloon temponade not only tries to stop the bleeding effectively, it also decreases the chance of further post partum haemorrhage afterwards. Simultaneous transfusion of fresh blood and fresh frozen plasma provides fresh clotting factors and decrease bleeding.

This prospective interventional study was therefore carried out with an aim to establish the effectiveness of prophylactic intrauterine hydrostatic balloon temponade in preventing postpartum haemorrhage hence improving the prognosis and survival rate in this study group to detect the prevalence of different types of viral hepatitis in intrapartum jaundice patients in Dhaka, Bangladesh. It was tired to find out any association of intrapartum jaundice with the age, parity or gestational age of the mother. Maternal and foetal outcome, especially the prevalence of perinatal deaths was assessed. Postpartum haemorrhage has always been a complication in this group of patients.

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### Materials and Methods:

This prospective interventional study was carried out on 40 pregnant patients with jaundice admitted in the Department of Obstetrics and Gynaecology, Dhaka

Medical College Hospital during the study period. The duration of the study was from January to December 2004. All the patients included in this study were in different stages of labor. Informed consent was taken from all the patients.

Special emphasis was given to control primary postpartum haemorrhage by using prophylactic intrauterine hydrostatic balloon temponade/catheter in addition to other conventional methods (which included Inj.Oxytocin, Inj. Ergometrine, per rectal use of tablet Misoprostol along with gentle massage of uterus). Fresh blood and fresh frozen plasma were also transfused in appropriate cases.

Intrauterine hydrostatic balloon/condom temponade was inserted in all the patients as a prophylactic measure to prevent postpartum haemorrhage. A condom was used as a balloon and was tied at the tip of a plain rubber catheter. Other end of the rubber catheter was connected to an infusion set attached with 500 cc normal saline. Placing the patient in a dorsal position, a Sims speculum was used to expose the cervix and the anterior lip was grasped by a sponge holding forcep. Tip of rubber catheter along with the condom was held by another sponge holding forcep and was introduced into the uterus. Initially, around 100cc fluid was introduced followed by packing the vagina with vaginal packs/pads to prevent the balloon temponade from escaping out of the uterus. Then remaining 200-300cc fluid was introduced. The rubber catheter was disconnected from the infusion set and was tied strongly to make it water seal and was finally attached with the inner aspect of the thigh of the patient by a piece of micropore. The Balloon temponade was removed between 36-48 hours after insertion and the amount of postpartum haemorrhage was observed. Maternal and Fetal outcome was also noted. Apart from this, 3 important viral markers (HBsAg, Anti-HCV and Anti-HEV IgM) by ELISA method were used to detect the etiological agent responsible for viral hepatitis in the study group. Inclusion criteria for HELLP syndrome were platelet count  $<1,00,000/\text{cu mm}$  of blood, Aspartate Transaminase(AST) $>70$  U/L and Lactate Dehydrogenase(LDH) $>600$ U/L. All the patients with HELLP syndrome had pregnancy induced hypertension(PIH).

All the informations were collected in a pre-designed structured data collection sheet and were compiled on a master chart first. Then organized by using a scientific calculator and standard statistical formula. Percentages were calculated to find out the proportion of the findings. The results were presented in Tables, Figures, Diagrams etc.

#### Results:

Majority of the patients(52.5%) were from 21-25 age group.

Most of the patients were either primi(35%) or 2nd gravida(40%).

A total of 72.5% patients went into preterm in the study population.

Viral hepatitis happened to be the chief aetiological agent(Table-I) responsible for jaundice (85% cases) followed by HELLP syndrome(15%) cases in this study. The viral hepatitis group was further subdivided on the basis of serological markers by ELISA method. The study shows(Table-II) that 20.5% patients were infected with Hepatitis B virus (HBV), 56% with hepatitis E virus(HEV), 6% with Hepatitis C virus(HCV) and as high as 17.5% patients had both HEV and HBV.

**Table-I**

*Aetiological distribution of patients(n=40):*

Aetiological agent	No. of patients	Percentage
Viral hepatitis	34	85%
HELLP Syndrome	06	15%
Others	00	00%
Total	40	100%

**Table-II**

*Distribution of patients by specific viruses (n = 34)*

Name of virus	No. of patients	Percentage
HBV	07	20.5%
HEV	19	56%
HCV	02	06%
HEV+HBV	06	17.5%
Total	34	100%

Out of the 41 babies (one patient had twins), this study shows a high proportion (18 cases, 44%) of perinatal death (Table-III). There was intrauterine death (IUD) in 27% cases, stillbirths (SB) in 23% cases and early neonatal deaths (END) in 50% cases (Table-IV). Most of the early neonatal deaths were due to prematurity.

**Table-III***Distribution of foetal outcome (n = 41)*

Foetal outcome	No. of foetuses	Percentage
Survives well	23	56%
Perinatal death	18	44%
Total	41	100%

**Table-IV***Distribution of Perinatal deaths (n = 18):*

Type of Perinatal death (PND)	No. of foetus	Percentage
Intrauterine death (IUD)	5	27%
Stillbirths (SB)	4	23%
Early neonatal death (END)	9	50%
Total	18	100%

34 (85%) patients had vaginal delivery whereas caesarean section was done in 6 (15%) cases due to other obstetric indications (Table-V).

**Table-V***Mode of termination of pregnancy (n = 40):*

Mode of termination	No. of patients	Percentage
Vaginal delivery	34	85%
Caesarean section	06	15%
Total	40	100%

There were 4 maternal deaths (10%) in this study (Table-IV). The deaths were caused by fulminant hepatic failure.

**Table-VI***Distribution of maternal outcome (n = 40):*

Maternal outcome	No. of patients	Percentage
Improved well	36	90%
Maternal death	04	10%
Total	40	100%

Prophylactic intrauterine hydrostatic balloon temponade was inserted in all of the 40 cases. It shows an excellent effectiveness (90%, 36 cases) of the temponade (Table-VII) in preventing and controlling postpartum haemorrhage in the study population. In 36 cases (90%); there was no postpartum haemorrhage as mentioned in table VII.

**Table-VII***Amount of PPH after removal of temponade (n = 40):*

Results	No. of patients	Percentage
No PPH	36	90%
Mild to moderate PPH	04	10%
Total	40	100%

**Discussion:**

Jaundice in pregnancy is a high risk case because of its association with postpartum haemorrhage. Intrauterine hydrostatic balloon/condom temponade is now increasingly being used to control postpartum haemorrhage and is well supported by several studies<sup>2,5</sup>. But, this study showed the effectiveness (90% cases) of the balloon temponade in preventing and controlling postpartum haemorrhage in patients with jaundice. So along with other conventional methods, this cheap and easily available balloon temponade can be used satisfactorily in preventing postpartum haemorrhage in this group of patients. The remaining 4 patients in which the intrauterine temponade proved to be ineffective were managed conservatively along with transfusion of fresh blood and fresh frozen plasma. However all these 4 patients ultimately died from fulminant hepatic failure (Table VI).

Though some papers are available regarding the etiological agents for jaundice in Bangladesh<sup>3</sup>, no recent data are there about the etiological agents responsible for jaundice in pregnancy. This small study showed that HELLP syndrome was responsible for jaundice in 15% cases and viral hepatitis in 85% cases. Hepatitis E virus (HEV) was the key aetiological agent in as high as 56% cases followed by Hepatitis B virus (HBV) and Hepatitis C virus (HCV) in 20.5% and 6% cases respectively. Interestingly, 17.5% patients had both HEV and HBV as presented in table II.

**Conclusion:**

Jaundice in pregnancy is an increasing obstetric problem in Bangladesh. The study shows that it is mostly restricted to last trimester and is associated with preterm labour and significant perinatal death. It also indicates that there is increased prevalence of Hepatitis E virus infection in pregnant women in Bangladesh. Prophylactic use of intrauterine hydrostatic balloon temponade in addition to other conventional methods exhibited excellent effectiveness in controlling postpartum haemorrhage in the study group.

The study strongly recommends using prophylactic intrauterine hydrostatic balloon temponade/catheter in all cases of pregnancy with jaundice to prevent and control postpartum haemorrhage.

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