

Incidence of Hepatitis among Pregnant Women of North Indian University Teaching Hospital

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Abstract

Background: Hepatitis is the liver inflammation caused by A, B, C, D and/or E viruses. Hepatitis is a major health issue in India and the worldwide. The prevalence is increasing among pregnant women in proportion to the increase worldwide. Hepatitis in pregnant women leads to increased maternal and neonatal morbidity and mortality. This led to collection of data to formulate a better plan. **Methods:** An observational study was done at Sir Sunderlal Hospital, Banaras Hindu University, Varanasi, Uttar Pradesh, India from the month of January to December 2014. Women who attended our outpatients department or delivered in our labour room and had Hepatitis were included in this study. Blood biochemistry and liver enzymes were done on all patients. Hepatitis markers were done as well. **Results:** The prevalence of hepatitis was 2.82% in our study population (irrespective of whether Hepatitis A, B, C or E). Hepatitis A was 28.8%, hepatitis B was 40.7%, hepatitis C was 18.6% and hepatitis E was 11.9% in our study population. Lower educational status women had higher incidence of hepatitis, illiterate group had 35.59% and high school educated had 42.37%. Low socioeconomic status (SES) had 52.4% and middle SES had 47.45% of hepatitis. There were 10.2% cases of abortion, 8.5% cases of DIC and 5.1% case of preeclampsia. **Conclusions:** This study highlights the overall prevalence of hepatitis in

our catchment area. It also shows that the very basic facilities are still the missing like sanitation, education and income. We need to highlight and work on those areas. Blood and blood products needs to be screened to reduce hepatitis B and C. Pregnant mothers should be managed as high risk group to improve their outcome. Neonatal immunisation should be both active and passive even if government has to bear the cost.

Keywords: Hepatitis; Screening; Prevention; Screening.

Introduction

Hepatitis is the liver inflammation caused by A, B, C, D and/or E viruses. It is an acute illness with discrete onset of symptoms eg fatigue, abdominal pain, loss of appetite, intermittent nausea, vomiting and jaundice [1].

The incidence of hepatitis is ever increasing in India. In the year 2012 nearly 119,000 cases of all-cause hepatitis were reported. A year later, in the 2013 Integrated Disease Surveillance Programme of the National Centre for Disease Control received notification of 290,000 cases of acute hepatitis. Under this programme there were 11.8% cases which were reported from Uttar Pradesh from 2010 to 2013 [2].

Hepatitis is a major health issue in India and the worldwide. The prevalence is increasing among pregnant women in proportion to the increase worldwide. Hepatitis in pregnant women leads to increased maternal and neonatal morbidity and mortality. Recently there is more emphasis on prevention and treatment of hepatitis during pregnancy, as it leads to reduction in maternal and neonatal morbidity and mortality. Hepatitis with pregnancy is now a common disease among pregnant women on the labour ward. Hepatitis B and C has more complications

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while Hepatitis E with pregnancy has higher mortality rate.

The global burden of HAV (Hepatitis A Virus) Infection is 1.4 million annually but the proportion of young adults at risk of HAV infection is very low in India. Hepatitis E Virus (HEV) infection is most prevalent in South East Asia accounting for 60% of hepatitis E global incidence and 65% of global deaths. Most acute liver failures diagnosed in India are due to HEV and HEV is the most common cause of hepatitis during pregnancy. In India, HBV is the second most common cause of acute viral hepatitis after HEV. Our country is considered to have an intermediate level of HBV endemicity with population prevalence of around 4%. Globally 350 million people remain chronically infected with hepatitis B and become carriers, out of which 1.5 million deaths occur each year due to cirrhosis & hepatocellular carcinoma [3-5].

The population prevalence of HCV in India is 1%. HDV is not very common in our country and is found in 10-20% of HBV positive patients. HAV and HEV both of them are transmitted through fecal-oral route. Hepatitis viruses B (HBV), D (HDV) and C (HCV) are transmitted through parenteral route [2].

Perinatal transmission is prevalent in HBV but less frequent in HCV. It is about 10% if mother has HBs Ag and 90% when HBeAg is also positive. Neonates who suffer from neonatal hepatitis B have almost 90% risk of developing HBs Ag carrier and chronic liver disease [6].

HDV co-infects with HBV. The ability of HBV & HCV to survive for prolonged periods on the external surfaces at room temperature (nearly seven days) increases their infectivity [7]. Table 6 shows the risk factors for HBV, HCV, & HDV.

Table 6:

Transmission for HBV, HCV, & HDV

1. Transmission could be due to needle stick injury to paramedical staff, eye contamination.
2. Transfusion of unscreened blood, use of contaminated needles and syringes.
3. Homosexual and heterosexual contact.
4. Vertical transmission from mother to baby.
5. Caesarean, surgical abortions & other operations done by using contaminated equipment.
6. Tattooing.
7. Transplantation/dialysis of infected blood.

Hepatitis' high prevalence in our hospital and increased morbidities and mortalities in patients with hepatitis during pregnancy was the reason why we thought of collecting the outcome data which could help us in formulating better management plan. There are studies in which Hepatitis B data has been collected but so far but no studies have been done in which data was collected regarding types of viral hepatitis during pregnancy in Northern India.

depending upon the pregnant women's clinical presentation and time of arrival. HAV and HEV were diagnosed by the presence of serum IgM antibodies. HbsAg was the serum marker to confirm active Hepatitis B infection. HBeAg was taken as increased infectivity, appearance of IgM antiHBc confirmed acute infection. Appearance of anti-HBs implies either natural immunity or vaccination. Presence of anti-HCV suggested infection by HCV.

Materials and Methods

An observational study was done was done at Sir Sunderlal Hospital, Banaras Hindu University, Varanasi, Uttar Pradesh, India from the month of January to December 2014. Women who attended our outpatients department or delivered in our labour room and had Hepatitis were included in this study. Informed consent was taken from patients regarding their data collection. Socio-demographic details, clinical details and risk factors were noted while the patients were on the ward. Neonatal immunisation was also noted.

Blood biochemistry and liver enzymes were done on all patients. Hepatitis markers were done either on the labour room or in the outpatient's department

Results

Total number of deliveries was 2089 during that year. Number of women who were positive for any type of hepatitis was 59. The prevalence of hepatitis was 2.82% in our study population (irrespective of whether Hepatitis A, B, C or E). There were of 38 multigravid (64.4%) and 21 primigravid (35.6%) pregnant women out of the total 59 pregnant women who were included in this study.

Hepatitis A was 28.8%, hepatitis B was 40.7%, hepatitis C was 18.6% and hepatitis E was 11.9% in our study population (Table 1). Lower educational status women had higher incidence of hepatitis, illiterate group had 35.59% and high school educated had 42.37% (Table 2). Low socioeconomic status (SES)

had 52.4% and middle SES had 47.45% of hepatitis (Chart 1).

There were total of 11 cases of hepatitis C due to blood/blood products transfusion in our study. INR was deranged in 13.55% patients (8/59) as shown in Table 3. There were total of 10 preterm babies (16.9%), 14 IUDs (23.7%) and one low birth weight (1.7%) as shown in Table 4 and Chart 4. There were 10.2% cases of abruption, 8.5% cases of DIC and 5.1% case of preeclampsia (Table 5).

Risk factors of hepatitis are depicted in Chart 2, use of contaminated syringes was in 37.5% cases of hepatitis B (total 24 cases) while 20.83% followed abdominal surgeries. 11 husbands of hepatitis B positive patients were positive for Hepatitis B, while 10 were negative and 3 husbands declined the testing. Neonatal intake of hepatitis B vaccine was 100% among the hepatitis B positive mothers but only 45% had immunoglobulin due to cost factor.

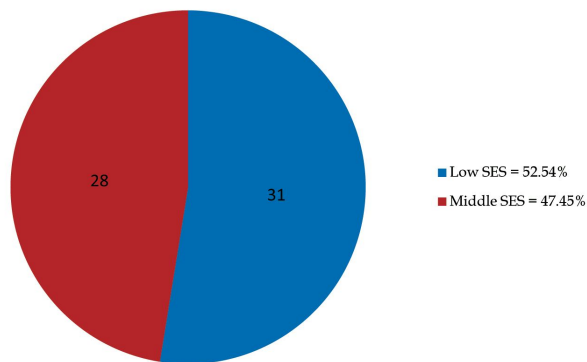


Chart 1: Socioeconomic status

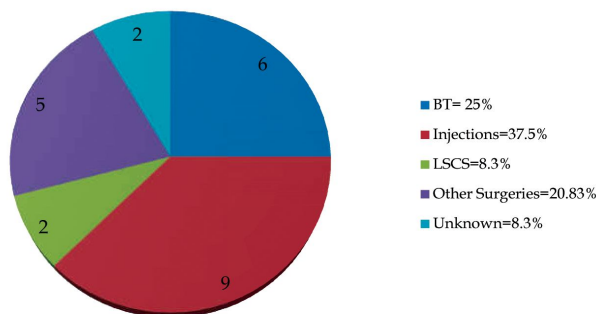


Chart 2: Risk factors of hepatitis B

Table 1: Types of hepatitis

Types of hepatitis	Number	Percentage
A	17	28.8%
B	24	40.7%
C	11	18.6%
E	7	11.9%
Total	59	100%

Table 2: Educational status of the study group

Educ Status	No	%
Illiterate	21	35.59%
High School	25	42.37%
Under graduate	7	11.86%
Post graduate	6	10.16%
Total	59	100%

Table 3: Deranged INR

Hepatitis A	0
Hepatitis B	1
Hepatitis C	2
Hepatitis E	5

Table 4: Fetal/Neonatal complications

	Preterm	LBW	IUD
Hepatitis A	3	0	2
Hepatitis B	2	1	4
Hepatitis C	3	0	4
Hepatitis E	2	0	4

Table 5: Maternal complications

Complications	Number	Percentage
Abruption	6	10.2%
Ascites	1	1.7%
Cholestasis	2	3.4%
DIC	5	8.5%
Fulm hepatic failure	1	1.7%
GI bleed	2	3.4%
Hepatic encephalopathy	1	1.7%
Mat death	2	3.4%
Preeclmpsia	3	5.1%

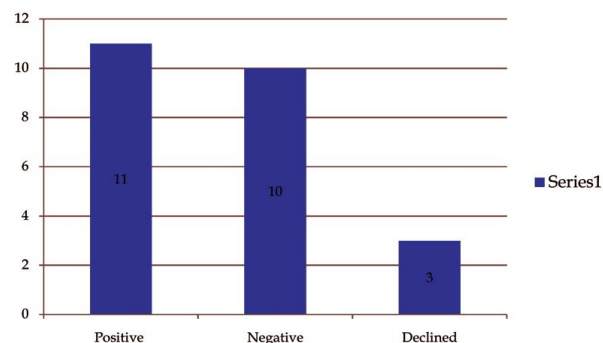


Chart 3: Husband's hepatitis B status

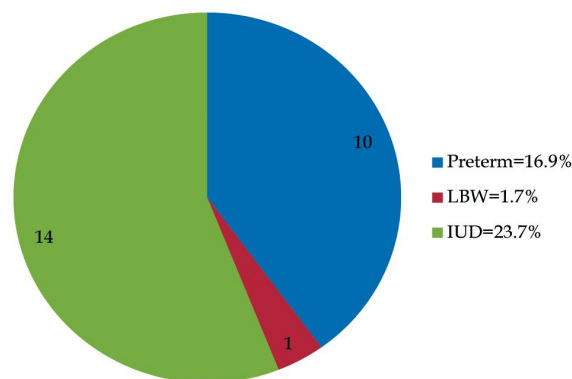


Chart 4: Fetal/Neonatal complications

Discussion

In this study the overall prevalence of hepatitis is 2.8% during the year of January to December 2014, but hepatitis B positivity was almost 40%. 2.8% is below the Indian mainland prevalence but higher than the neighbouring Allahabad region (0.9%). This

difference may be because of population studied, catchment area, unscrupulous blood products and socioeconomic status [8]. The prevalence rate is higher in multigravida as it is found in study by Sharma et al, similar findings were observed regarding hepatitis B risk factors [6]. Table 7 represents the management protocol we used.

Management offered was:

1. Isolation: blood/body fluids and excretory materials.
 2. Dextrose 10% or Oral Glucose.
Avoid hepatotoxic drugs (eg Acetoaminophen, Diclofenac, Amiodarone, M Dopa, OCPs, Amoxicillin, Ciprofloxacin, Erythromycin, Fluconazole, Valproic acid, Chlorpromazine, Isoniazid, Rifampicin.
 3. Pruritus: Treat with Cholestyramine or Ursodeoxycholic acid.
 4. Lactulose 15-30 mL thrice a day (reduces absorption of ammonia from the colon and act as osmotic laxative.
 5. Oral Neomycin 1 gram 6 hourly to prevent toxic nitrogenous compounds.
 6. Vit K 0.5 mg IM to improve Prothrombin level.
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Conclusions

This study highlights the overall prevalence of hepatitis in our catchment area. It also shows that the very basic facilities are still the missing like sanitation, education and income. We need to highlight and work on those areas. Blood and blood products needs to be screened to reduce hepatitis B and C. Pregnant mothers should be managed as high risk group to improve their outcome. Neonatal immunisation should be both active and passive even if government has to bear the cost.

The way forward for Hepatitis A and Hepatitis E is : improvements in sanitation and sewage disposal. HAV can also be prevented by live attenuated vaccine although not routinely recommended due to high sero-prevalence in India. Vaccine is available and of

0.06 mL im dose single dose, it is safe in pregnancy. Immunoglobulin 0.01ml/ kg can be given within 2 weeks of exposure. For Hepatitis B: Universal vaccination with HBV vaccines for all. Thorough screening of blood products should be done. Active and passive immunity of neonates who were born to hepatitis B positive mothers is by: HBV vaccine (10 microgram) and hepatitis immunoglobulin (0.5 ml) within 12 hours of birth.

Statistical Analysis

It was done in the Department of Community Medicine, Institute of Medical Sciences, Banaras Hindu University by Prof G P Singh. His contribution is greatly acknowledged.

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