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## VIRAL HEPATITIS AMONG PREGNANT WOMENS;

### PREVALENCE, A CROSS SECTIONAL STUDY AT TERTIARY CARE HOSPITAL, PAKISTAN

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**ABSTRACT... Objectives:** To determine the prevalence of Hepatitis B and C virus infection and various etiological factors associated with it among pregnant females. **Study Design:** cross sectional study. **Place and Duration of Study:** It was done at Ayub Teaching Hospital, Abbottabad in the Department of Obstetrics & Gynaecology from 1<sup>st</sup> Jan 2016 to 31<sup>st</sup> December 2016. **Methodology:** A total of 474 pregnant females of age between 15-45 years were included in the study through consecutive sampling. Blood samples were sent for HBsAg and HCV for examination through ELISA. Samples were analyzed by the pathologist with >5 years clinical experience. All data were analyzed using SPSS version 17. **Results:** A total of 3.4% and 7.5% of the primigravida pregnant women studied were hepatitis B and C sero-positive. **Conclusion:** The need to institute public health measures to reduce disease burden and transmission, including routine screening of all pregnant mothers for HBV and HCV infections.

**Key words:** Hepatitis B; Hepatitis C; Common Factors, Pregnant Women's, Prevalence.

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## INTRODUCTION

Inflammation of the liver characterized by the presence of inflammatory cells is called Hepatitis. Hepatitis may be acute or chronic. When it lasts for less than 6 months, it is acute and when it lasts more than 6 months, it is chronic. It is usually asymptomatic or with little symptoms. The most common signs and symptoms are jaundice, decrease appetite and malaise.<sup>1</sup> There viruses are transmitted from mother to infant or child through vertical transmission or sexually or contact with different body fluids through horizontal transmission.<sup>2</sup> Among all viral hepatitis, Hepatitis C virus is the main culprit in causing chronic liver disease. Globally 170 million people are HCV infected. Among them 3 percent are chronically infected. The highest incidence of chronically infected people are between 30 to 49 years.<sup>3</sup> The most important viruses are Hepatitis B and Hepatitis C. These viruses vary in their natural history, carrier rate, mode of transmission as well as complications rate. For instance,

among all Hepatitis C affected people, about 75-85% of patients become chronically affected while in Hepatitis B only 10%. Similarly among all chronically affected HCV individuals only 10-15% of patients develop liver cirrhosis while in Hepatitis B, it is 15-40% developed liver cirrhosis and hepatocellular carcinoma.<sup>4</sup> The diagnosis of acute hepatitis B is confirmed by detection of the surface antigen and IgM antibody to the core antigen. Identification of HBeAg is indicative of exceptionally high viral inoculum and active viral replication<sup>5</sup> Anti HCV antibodies are detected by ELISA method. The most important therapy for management of Hepatitis B and C is the use of interferon's. Those whose presented late and chronically affected, should not be treated with interferon's. Similarly the use of interferon's in pregnancy should be done with close monitoring.<sup>6</sup>

The hepatitis C is more dangerous and difficult to prevent as compared to Hepatitis B infection because of absence of vaccine and approved

therapy during pregnancy.<sup>7</sup>

There is little literature available about the prevalence of Viral Hepatitis in our population especially among pregnant females. So, the main aim of this study was to determine the prevalence of the viral hepatitis in pregnant patients admitted in our unit and the various risk factors associated with it.

## MATERIALS AND METHODS

This study was carried out in Ayub Teaching Hospital, Abbottabad in the department of Obstetrics & Gynaecology from 1<sup>st</sup> Jan 2016 to 31<sup>st</sup> December 2016 after approval from the Hospital Ethical Committee. A total 474 primi or multigravida females of age between 15-45 years were included in the study. The purpose and procedures of the study were explained to all participants by a trained researcher, and written informed consent was obtained from all subjects. All the pregnant females were selected on the basis of non probability consecutive sampling technique admitted at department. Patient with chronic liver disease, hemolytic disorder, patients with malaria due to plasmodium vivax, malriae or ovale species and those who refused to give consent were excluded from study. Hepatitis B virus infection were define as reactive Enzyme Linked Immunosorbent assay (ELISA) 3<sup>rd</sup> generation for HBsAg with cut off value of 2.0 in the laboratory and hepatitis C virus infection were define as reactive Enzyme Linked Immunosorbent assay (ELISA) 3<sup>rd</sup> generation for

anti HCV antibodies with cut off value of 1.0 in the laboratory. Patient demographic characteristics, previous history of surgery, intravenous injections, blood transfusion, or piercing of any body part, tattooing etc were recorded on a preformed Performa. Samples were analyzed by the pathologist with > 5 years clinical experience. Data were entered in SPSS version 17. Frequency and Percentages were calculated for categorical variables. Mean and SD were calculated for numerical data. Post stratification were done through Chi square test keeping P.Value < 0.05 will be significant.

## RESULTS

The age ranged from 15 to 45 years. The mean age was 28.2 ±5.7 years. The patients with age from 15- 30 years were 188(39.66%) while patients of age from 31 to 45 years were 286(60.34%). Almost half of the patients belong from rural and half from urban. 87(18.35%) of the patients were employed, 342(72.15%) were house wife and 45(9.50%) of the patients were working on daily wages. Almost near to half of the patients were uneducated i-e 213(44.94%), 114(24.05%) did primary schooling, 86(18.14%) did middle schooling while remaining were highly qualified i-e 61 (12.87%).

The patients who were primigravida were 97 (20.46%), multi para having 2-4 children 174 (36.71%) and those having more than 4 children were 203(42.83%). (Table-I)

Age	15 – 30	Hepatitis B	YES	11
	188 (39.66 %)	Hepatitis C	YES	14
	31 – 45	Hepatitis B	YES	14
	286 (60.34 %)	Hepatitis C	YES	23
Address	Urban	212 (44.72 %)		
	Rural	262 (55.28 %)		
Occupation	Employed	87 (18.35 %)		
	Housewife	342 (72.15 %)		
	Laborers	45 (9.50 %)		
Education status	No formal education	213 (44.94 %)		
	Primary school	114 (24.05 %)		
	Secondary	86 (18.14 %)		
	Tertiary	61 (12.87 %)		
Pregnancy	Primigravida: 1	97 (20.46 %)		
	Multigravida: 1- 4	203 (42.83 %)		
	Grand multigravida: >4	174 (36.71 %)		

Table-I. Demographic characteristics of patients;

The patients having previous history of any type of surgery either major or minor were 48(10.13%), those who having ear piercing or tattooing were 415(87.55%), those who having previous history of blood transfusion were 37(7.81%), those with any type of injection like intramuscular, intravenous etc were 115(24.26%), and the females who having family history of hepatitis were 76(16.03%). (Table-II)

	Frequency (n)	Percentage (%)
Previous History of surgery	48	10.13%
Ear piercing or Tattooing	415	87.55%
Blood transfusion	37	7.81%
Previous Intramuscular or intravenous injection	115	24.26%
Family history of hepatitis	76	16.03%

**Table-II. Frequency of different factors responsible for hepatitis**

25 (5.27%) patients were HBsAg positive and 37 (7.81%) were anti-HCV positive but no were affected from HIV. On cross tabulation, there is statistically significant findings of occurrence of hepatitis and exposure to previous history of surgery, blood transfusion and ear piercing.

## DISCUSSION

Chronic liver diseases are an important health challenge worldwide, wherein HBV or HCV infection is the main cause of liver insufficiency with different varieties in all over the world. In our study 25 (5.27%) patients were HBsAg positive and 37 (7.81%) were anti-HCV positive but no were affected from HIV. Tegegne D et al in their study at Ethiopia found that the prevalence of pregnant females having hepatitis B was only 3% which is much lower than our findings.<sup>2</sup> Seid M et al while studying the prevalence of hepatitis B and C found that, out of 385 pregnant women who having mean age was  $28.16 \pm 5.37$  years, the overall prevalence of HBV and HCV infections were 4.9% and 0.8% respectively. Which is again lower than our findings.<sup>4</sup> In both of the above studies the prevalence rate is low as compared to our study. Most of the multigravida in our study were suffering from viral hepatitis while similar findings were found in another study at Pakistan.<sup>8</sup>

Hilda AE et al did study at Nigeria and found the seroprevalence of anti-HCV antibody was 1.79%. They considered ELISA as a standard test for detecting hepatitis due to its high sensitivity and specificity.<sup>9</sup> Mirambo et al did study at Tanzania on Prevalence of Hepatitis B among pregnant women and again found a low prevalence of it i-e 3.8% as compared to our study.<sup>10</sup>

In our study the prevalence of Hepatitis C were high as compared to Hepatitis B while the study of Tetteh V having high prevalence of hepatitis B as compared to Hepatitis C.<sup>11</sup> In our study the highest number of cases occur between the ages of 31- 45 years while the study of Dwivedi M found that out of 4,000 women, 37 (0.9%) tested positive for HBsAg. Of these 37 women, 6 (16%) presented with acute hepatitis and 31 (84%) were asymptomatic. The highest HBsAg positivity rate was seen in the age group of 21–25 years (1.15%) followed by 26–30 years (0.86%).<sup>12</sup> The SeyedReza M et al in their study found that Anti-HBc was found in 28 of 827 pregnant women (overall prevalence, 3.4%; 14 of 523 in urban areas, 2.7%; 14 of 304 in rural areas, 4.6%). Of the 28 positive samples, 6 (0.7%) were positive for HBs-Ag. Only 2 samples (0.2%) were anti-HCV-positive.<sup>13</sup> Similarly to our study there were no difference of prevalence of viral hepatitis between urban and rural area. However all of the studies discussed having low prevalence rate as compared to our findings. There were some limitations in our study. Most of the patients refused to do ELISA because of the cost of the test and were drop from the study. Moreover most of the patients don't know whether they got vaccination or not against hepatitis B and this variable were drop from the study. So, further studies needed for better outcome.

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### AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Mehreen Jadoon	Data collection	
2	Iram Sarwar	Concept Methodology	
3	Sadia Habib	Data analysis	
4	Sumbul Gul	Article writing	
5	Zahida Parveen	Critical analysis and final approval	