



## Prevalence of Hepatitis C in pregnant patients visiting a Tertiary Care Hospital in Faisalabad.

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**ABSTRACT... Objectives:** To determine prevalence of Hepatitis C among pregnant female visiting a tertiary care hospital. **Study Design:** Observational study. **Setting:** Independent University Hospital Faisalabad. **Period:** 1-1-2018 to 31-12-2018. **Material & Methods:** Total 4210 pregnant patients visited during this time period. **Results:** During the study period i-e from 1-1-2018 to 31-12-2018, total 4210 obstetric patients visited Independent University Hospital. Among them 463 were Anti HCV +with % age of 10.9. Our study showed that 28 patients (6%) were <19 yrs of age, 35 patients (7%) were 20 to 25 yrs. 48 patients (10%) were 26 to 29 yrs. 151 patients (32%) were 30 to 35 yrs of age. 201 patients (43%) were more than 35 yrs. Our result has shown that most of the infected patients were having their 5<sup>th</sup> or more pregnancy (202%). 182 patients (39%) were G4 or G5. 47 patients (10%) were having their 2<sup>nd</sup> or 3<sup>rd</sup> pregnancy while only 32 (6%) primigravidas had this infection. Our study has shown that 325(70%) patients were of rural background while 135(29%) patients belonged to urban areas. When these Hepatitis C +ve patients were analyzed for risk factors, 91 had some dental manipulation in the past (19%), 104 had history of previous blood transfusion or some parental infusions (22%) 32 patients (6.9%) had their partners infected with Hepatitis C. 161 patients (34%) had history of some surgery or previous vaginal delivery at some centre where sterilization was not standardized. 75 patients (16%) had no identifiable risk factor. **Conclusion:** The prevalence of Hepatitis C is quite high in pregnant patients of Faisalabad. There is a dire need to address the factors involved in transmission of disease. Health policies should be revised to decrease the spread of this virus. Increased awareness is needed among the people regarding its transmission and early diagnosis so that curative measures should be timely taken to avoid the dreadful complications of Hepatitis C.

**Key words:** Hepatitis C, Prevalence.

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## INTRODUCTION

Infections due to hepatitis c virus (HCV) is a significant health problem around the globe. It has affected a huge number of people compromising their health.

The disease is either acute or chronic. It affects the liver manifesting itself either mild infection which is asymptomatic or moderate infection causing liver fibrosis and cirrhosis. It can sometimes lead to hepatocellular carcinoma within 20-30 years of infection.<sup>1</sup>

HCV is a single stranded RNA viruses belonging to family flaviviridae and genus hepacivirus.

The estimated global prevalence of Hepatitis is 1.5-2% affecting upto 71 million people. Prevalence varies between high income countries versus developing countries. In the later prevalence is up to 13% higher.<sup>2</sup>

The Hepatitis C virus transmits its infection via body fluids like blood and blood products. Other modes of transmission are vertical or via sexual contact. One of the most important preventable mode of transmission is blood transfusion.<sup>3</sup>

Currently Hepatitis c affects 8% of pregnant women.<sup>4</sup>

It has been estimated that up to 29,000 women who were infected with Hepatitis C delivered each year from 2011-2014 Ly, 2017. The incidence of Hepatitis C has decreased in past 20 years. The reason for this decline is good screening of blood products, increased awareness among people, improved hygiene and antiviral therapy, but its prevalence is thought to rise again in the future due to increased use of injectable opioids.<sup>5</sup>

Two main concerns arise from hepatitis C in pregnancy. First is effect of pregnancy on HCV infection and second is mother to infant transmission of HCV and impact of maternal infection on pregnancy outcome. Pregnancy has no or minimal effects on progression of the disease. Considering pregnancy an immune compromised state maternal serum aminotransferase levels fall. It may be due to result of immunosuppressive cytokines released during pregnancy. Most pregnant women have minimal liver fibrosis although in some patients, advanced fibrosis can occur. HCV RNA levels rise during first and third trimester, reaches its peak during third trimester and decrease in postpartum period, these effects are also due to immunosuppressive effects of pregnancy. Few studies have shown that chronic hepatitis C infection in mother can head to poor perinatal outcome. One study suggested that infants of these patient are small for gestational age have low birth weight, require resuscitation at birth and high chances of admission to NICU.<sup>6</sup>

Some other studies also shown that pregnancy with HCV infected mother are at risk for low birth weight, preterm deliveries and congenital malformation. But in these studies, Substance use were not controlled for.

While studying the relationship between maternal HCV infection and pregnancy outcome, presence or absence of other concurrent risk factors of poor outcome such as poor antenatal care and poly substance use, need to be addressed first.

In one study showing fetal outcome in HCV infected mothers, there was 3.4% of FGR, 17.9% rate of preterm delivery, 11.3% rate of small for gest age and 12% of low birth infants. But the

authors did not find a substantial association of poor perinatal outcome with actual viremia. It showed that risk factors for their adverse events may be due to other confounding factors.<sup>7</sup>

Pregnant patients with hepatitis C are at increased risk of developing intrahepatic cholestasis of pregnancy (ICP). The overall incidence of ICP in general obstetric population is 0.2 to 2.5% and it is 20 folds higher in the HCV infected obstetric patients. Given that increased risk of fetal death associated with ICP, diagnosis of hepatitis C in pregnancy is important. It is important to assess the load of Hepatitis C in obstetric patients. Not only the pregnant female and fetus are at risk, but also health personally and paramedic staff are at stake of contracting the disease while treating these patients. In Pakistan, there is very high prevalence of Hepatitis c especially in rural population.<sup>8</sup>

In this study, we have assessed prevalence of Hepatitis C in Obstetric patients of Independent University Hospital. It is a tertiary care hospital, and cater for huge population mostly of rural origin.

## **OBJECTIVES**

To determine prevalence of Hepatitis C among pregnant female visiting a tertiary care hospital.

## **MATERIAL & METHODS**

This was an observational study conducted from 1-1-2018 to 31-12-2018.

All obstetric patients who visited independent university hospital was included.

Total 4210 pregnant patients visited during this time period.

## **Inclusion and Exclusion Criteria**

All pregnant patients who visited the Independent University Hospital during year 2018 were included in the study. Informed consent was obtained, blood samples were taken and analyzed on commercially made kit. IHC 302- HCV rapid

test cassette by expert, INC Miami, Florida that detects HCV by qualitative test based on lateral flow immunoassay.

Data collected was assessed and analyzed by using SPSS 20.

## RESULTS

In year 2018 total 4210 obstetric patients visited Independent University Hospital. Among them 463 were Anti HCV +with % age of 10.9 Our study showed that 28 patients(6%) were <19 yrs of age,35 patients(7%) were 20 to 25 yrs. 48 patients(10%) were 26 to 29 yrs. 151 patients(32%) were 30 to 35 yrs of age. 201 patients (43%) were more than 35 yrs.

Our result has shown that most of the infected patients were having their 5<sup>th</sup> or more pregnancy (202%). 182 patients (39%) were G4 or G5.47 patients (10%) were having their 2<sup>nd</sup> or 3<sup>rd</sup> pregnancy while only 32 (6%) primigravidas had this infection. So prevalence of disease increases as no of pregnancies increases our study has shown that 325(70%) patients were of rural background while 135(29%) patients belonged to urban areas.

When these Hepatitis C +ve patients were analyzed for risk factors 91 had some dental manipulation in the past (19%), 104 had history of previous blood transfusion or some parental infusions (22%) 32 patients (6.9%) had their partners infected with Hepatitis C. 161 patients (34%) had history of some surgery or previous vaginal delivery at some centre where sterilization was not standardized. 75 patients (16%) had no identifiable risk factor.

Age Group	No of Patients	%
<19	28	6.04
20-25	35	7.5
26-29	48	10.3
30-35	151	32.6
>35	201	43.4

**Table-I. Distribution of Anti HCV infected pregnant patients according to age n=463.**

Parity	No of Patients	%
Primigravida	32	6.9
G2-G3	47	10.1
G4-G5	182	39
> G5	202	43

**Table-II. Distribution of patients according to parity n=463**

Risk Factors	No of Patients	%
H/O dental manipulation	91	19
Previous Blood transfusion	104	22
Hep C +ve partner	32	6.9
Previous delivery/surgery	161	34
No Identifiable risk factor	75	16

rural	325	(70.1%)
urban	135	(29.8%)

**Table-III. Distribution of risk factors in Hepatitis C +ve patients n=463**

Table-IV. Distribution of patients according to ethnicity n=463

## DISCUSSION

High prevalence of HCV is a threat to inhabitants of Pakistan. The health sector of our country is already overburdened due to very high prevalence of other infectious diseases. Our health budget is quite low to combat all these problems.

The health of pregnant ladies is significantly deteriorated in our country due to increased prevalence of hepatitis C. There is scarce data available to assess exact load of this disease. There was a dire need to conduct studies which can show exact burden of HCV infected pregnancies. Our study has shown 10.9% prevalence of HCV infected women. This result is consistent with Umer et al<sup>9</sup> who stated frequency of hepatitis C among 6148 pregnant female as 7.3%.

Eleven studies dealing with serofrequency of HCV among pregnant women which spanned a period of 13 years from 1996 to 2008 and covered 6148 women. The frequency in this group ranged from 3.3 to 29.1 % average serofrequency was 7.3% (95% CI=6.7-8.0).

In another study the prevalence of anti HCV antibody in Indian population was found out to be 1.03%.<sup>10</sup>

Prevalence in western countries ranges from 0.14 to 4.4%.<sup>11</sup>

This showed that prevalence of Hepatitis C in Faisalabad is almost same in other cities of Pakistan. Indian pregnant population is also affected with almost similar prevalence however there is marked difference in our and western population.

Our study showed that 28 patients(6%) were <19 yrs of age,35 patients(7%) were 20 to 25 yrs.48 patients(10%) were 26 to 29 yrs.151 patients(32%) were 30 to 35 yrs of age.201 patients (43%) were more than 35 yrs.it showed that the disease was more prevalent in higher age group . It can be explained by the fact that older age group has more risk of exposure to this infection in their past.

In a study conducted in Central Africa, presentation of HCV was evaluated and found out to be 2.1%. The seroprevalence increases with age.<sup>12</sup>

.Inhabitants and patients of two cities in Vietnam who were tested for anti HCV antibody .In this study Anti HCV was detected in 9% of patients, however there was no apparent age specific distribution of Anti HCV.<sup>13</sup>

Gul N et conducted a similar study in Ayub Medical college which showed that HCV infection was more in 25-35 of patients.<sup>14</sup>

In a study conducted in Noshewra, 4.66% pregnant population was Anti HCV +ve. The age, gravidity and blood transfusion were the risk factor in population. Additionally the educational level of these women was also linked with the viral infection. It showed significant difference in association between seroprevalence of HCV and age (P=0.020).<sup>15</sup>

Our result has shown that most of the infected patients were having their 5<sup>th</sup> or more pregnancy (202%).182 patients (39%) were G4 or G5.47

patients (10%) were having their 2<sup>nd</sup> or 3<sup>rd</sup> pregnancy while only 32 (6%) primigravidas had this infection. So prevalence of disease increases as no of pregnancies increases.

A study carried out in Karachi in 2016 on 400 pregnant women, which showed 6.6% prevalence of Hepatitis C infection, these pregnant women. 7.9% fell in 26-30 years of age group. 70% were multigravida and 28% were primigravida. It is consistent with our study which showed high prevalence of this infection in multigravidas 10.9. It can be partly explained by increased exposure of these ladies to blood transfusion and parental infusions in previous pregnancies and history of deliveries and D & C by unsterilized instruments in the past.<sup>16</sup>

When these patients were evaluated for any risk factors our study results showed that 91 patients had some dental procedure carried out in their past.104 had received some blood transfusions.32 patients had their husbands infected with this infection,161 had some surgery, caesarean section, delivery or D&C in their past. However 75 patients have no identifiable risk factor.

A study carried out in Karachi which included 2592 pregnant females, showed that mean age of women was 25.7%. The Youngest was 18 and oldest was 35 years. There were 1004 primigravida in this study who had no recallable risk factors. Their risk factor analysis showed that 1551 (59.8%) had previous delivery of which 415 (26.7%) had a history of caesarean section. History of blood transfusion was present in 220 (37.4%), however no significant association was seen between risk factors and HCV infection.<sup>17</sup>

A study which was conducted in India showed that prevalence of hepatitis was 2.8%. Among the risk factors studied, previous surgery and blood transfusion were statically significant. p value 0.002 at p < 0.05. There was no identifiable risk factor in 35% of cases.<sup>18</sup>

An another study, when previous vaginal delivery with episiotomy, previous surgery and D&C were

taken as Independent variables, only post history of surgical procedures was found to be most important factor for transmission of hepatitis C virus infection.<sup>19</sup>

In Lahore, a study conducted which showed 10.84% prevalence of hepatitis C in pregnant women. Mean age of patients were 27 yrs. 3.15% women gave history of dental procedures, this study showed a high HCV prevalence with tattooing, comb and razor sharing.<sup>20</sup>

Our study showed slightly higher rate of infection among women of rural areas than in urban areas. It may be explained by higher prevalence of anemia in these women and increased exposure to infected needles and syringes. Parenteral exposure continues to be a major transmission route of HCV infection.

Hepatitis has become an endemic in developing countries like Pakistan.

Our finding of 10.9% prevalence in a tertiary care hospital in Faisalabad has vital health implications in pregnant female and their families as many of these women were asymptomatic and were not aware of their infection so they had substantial potential for transmission of this infection to their families and also to health personal's.

The epidemiological study of Hepatitis caused by Hepatitis C virus during pregnancy in absolutely necessary for program management and making health policies.

Since most of the cases are asymptomatic, they put the surgeon and paramedical staff at stake of contracting the disease through self pricks and they pose a real threat to other patients who share same surgical instruments.<sup>21</sup>

To Pregnancy is a fair time of involvement in medical care and there is a good opportunity to identify HCV infection. In Pakistan, pregnancy and the perinatal period may be the only time when women seek health facilities. It is no doubt the best time to confirm viral load, assess stage of disease and decide future treatment. It will not

only decrease rate of transmission to others but also eliminate the risk of HCV infection in next pregnancies.

Given the rise in HCV infected women of reproductive age, there is a need to treat this infection in this age group. Antiviral treatment is not recommended during pregnancy due to its known teratogenic effects. The best time of treatment in reference to pregnancy is not decided yet. But as, there is lack of data on DAA (directly acting antiviral treatment) during pregnancy, AASLD- IDSA guidelines recommend that treatment should be done either prior to pregnancy or it is deferred until after pregnancy. Women of reproductive age should be prioritized for treatment. Mostly these young patients not have fibrosis so they have good response to antiviral therapy.

Poor socioeconomic status, increased use of parental infusions, poor screening of transfused blood and blood products, sexual contacts with hepatitis C infected spouse, poses our pregnant female at risk of developing hepatitis. It is important to assess the health burden of this disease in our pregnant patients not only to improve fetomaternal outcome but make extra precautions while managing these patients.

Spread of HCV infection can be minimized by a protocol followed regarding strict screening and awareness regarding this infection should be promoted among health.

Keeping in view the deadly complications of hepatitis and its high infectivity we cannot afford to operate the patients without Hepatitis screening. Pregnant females, being a vulnerable group world wide, viral hepatitis is the commonest cause of hepatitis dysfunction in pregnancy.

Deficient knowledge and low standard health care services affecting the safe surgery are the major predisposing risk factors for spread of HCV in the community. Special efforts should be carried out by health personal's and the community to combat this challenging disaster. Keeping in view this global problem, the objective of this study



was focused on the prevalence of Hepatitis C virus and to point out important predisposing risk factors for its spread.

## CONCLUSION

The prevalence of Hepatitis C is quite high in pregnant patients of Faisalabad. There is a dire need to address the factors involved in transmission of disease. Health policies should be revised to decrease the spread of this virus. Increased awareness is needed among the people regarding its transmission and early diagnosis so that curative measures should be timely taken to avoid the dreadful complications of Hepatitis C.

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3	Saadia Bano	Literature review.	Saadia Bano
4	Uzma Shahzad	Data collection.	Uzma Shahzad
5	Saima Qureshi	Results interpretation.	Saima Qureshi
6	Tasneem Azhar	Reference writing.	Tasneem Azhar