

# Blood Transfusion as a Risk Factor for Hepatitis C in Pregnancy

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## ABSTRACT

**Background:** Hepatitis C virus (HCV) is an important cause for chronic liver disease worldwide. Infection by HCV may resolve spontaneously, but in the majority of cases, chronic infection was established that may result in liver cirrhosis and hepatocellular cancer.

**Aim:** To determine blood transfusion as a risk factor in causing hepatitis C in pregnant women.

**Method:** The case control study was carried out at Outpatient Department of Obstetrics and Gynaecology, Unit-II, Sir Ganga Ram Hospital, Lahore over a period of six months from 01-03-2009 to 31-08-2009. A total of 580 patients were included in this study (290 cases and 290 controls).

**Results:** Regarding age distribution, 189 (65.1%) cases and 203 (70.0%) controls were between 25-30 years. 101 (34.9%) cases and 87 (30.0%) controls were between 31-35 years old with mean age of  $31.7 \pm 1.6$  and  $30.5 \pm 2.7$  in cases and controls, respectively. History of blood transfusion showed 31 cases and 11 controls having odds ratio 3.04 with 95% confidence interval (1.43-6.57).

**Conclusion:** Hepatitis C infection among transfused patients is a common infection.

**Keywords:** HCV, Blood transfusion, Pregnancy

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## INTRODUCTION

Hepatitis C is a worldwide health problem affecting men and women of all ages<sup>1</sup>. Hepatitis C one of the most common liver diseases appearing during pregnancy<sup>2</sup>. Seroprevalence was found to be 0.29-0.40% in a study conducted in Scotland. HCV seroprevalence was high among 25-29 years old in high deprivation areas of Glasgow (7.2%)<sup>3</sup>. In young pregnant women however the existence of hepatitis C presents a set of unique issues for the mother and the child. For the mother, therapeutic and medical decisions for hepatitis C are affected by pregnancy<sup>1</sup>. Hepatitis C is a blood borne infection but only 25% of the infected pregnant women indicate a history of blood product transfusion or IV drug abuse<sup>5</sup>. Prevention against hepatotropic viruses is restricted due to lack of vaccines being effective in induction of efficient immunization in the majority of the microorganisms<sup>2</sup>. This proportion of HCV seropositivity among pregnant women in a study conducted at Shifa International Hospital was found to be 3.27% in Pakistan<sup>6</sup>.

HCV infection in India has a population prevalence of around 1% and occurs predominantly through transfusion. HCV genotypes 3 and 2 are prevalent in 60-80% population and they respond well to combination of interferon and ribavirin. HCV is a major cause of post-transfusion hepatitis<sup>7</sup>. In a study 9.7% of HCV positive patients had received varying number of blood transfusions in contrast to 3.22% of anti-HCV negative patients<sup>6</sup>.

Therefore, the effort will be to find the association between blood transfusion and hepatitis C in pregnant women so that early management could be done. It will also highlight the importance of blood screening before transfusion in our clinical practice.

## SUBJECTS AND METHODS

This case control study was carried out at Outpatient Department of Obstetrics and Gynaecology, Unit-II, Sir Ganga Ram Hospital, Lahore over a period of six months from 01-03-2009 to 31-08-2009. A total of 580 patients were included in this study (290 cases and 290 controls). Pregnant women between 25-35 years of age whose gestational age was between 28-40 weeks and were hepatitis C positive by ELISA method in cases and hepatitis C negative in control by ELISA method were included. History of needle prick injury, hepatitis C in partner, patients in whom partner had history of jaundice, haematemesis, abdominal distension, D&C for abortion or any other surgery and dysfunctional uterine bleeding were excluded. Patients were selected from OPD Gynae and Obstetrics. Consent of the patients were taken in written form that this data would be used for study purpose alone and all ethical issues. The data was entered and analyzed by SPSS version 20. Number of blood transfusions were measured in terms of frequency, percentage and odds ratio was calculated to see strength of association between blood transfusion and hepatitis C odds ratio  $\geq 2$  was considered significant.

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## RESULTS

Regarding age distribution, 189(65.1%) cases and 203(70%) controls were between 25-30 years. 101 (34.9%) cases and 87(30%) controls were between 31-35 years old with mean age of 31.7±1.6 and 30.5±2.7 in cases and controls, respectively (Table 1). Gestational age was <37 weeks in 53(18.2%) cases and 49(16.9%) controls while 237(81.8%) cases and 241(83.1%) controls having gestational age ≥37 weeks (Table 2). History of blood transfusion showed 31 cases and 11 controls having odds ratio 3.04 with 95% confidence interval (1.43-6.57) (Table 3).

Table 1: Distribution of cases by age

| Age (yrs) | Cases (n=290) | Controls (n=290) |
|-----------|---------------|------------------|
| 25-30     | 189(65.1%)    | 203(70%)         |
| 31-35     | 101(34.9%)    | 87(30%)          |
| Mean±SD   | 31.7±1.6      | 30.5±2.7         |

Table 2: Distribution of cases by gestational age

| Gestational age (yrs) | Cases (n=290) | Controls (n=290) |
|-----------------------|---------------|------------------|
| < 37                  | 53(18.2%)     | 49(16.9%)        |
| ≥ 37                  | 237(81.8%)    | 241(83.1%)       |

Table 3: History of blood transfusion

| H/O blood transfusion | Cases n=290 | Controls n=290 | Odds Ratio | 95% confidence interval |
|-----------------------|-------------|----------------|------------|-------------------------|
| Yes                   | 31(10.6%)   | 11(3.7%)       | 3.04       | 1.43 -6.57              |
| No                    | 259(89.4%)  | 279(96.3%)     |            |                         |

$\chi^2 = 10.27$  df =1

P value=0.001

## DISCUSSION

Hepatitis C is emerging as a major health issue in our country. The hepatitis C Virus (HCV) has become an important cause of chronic liver disease and liver cancer worldwide. Blood transfusion is one of the important modes of transmission.<sup>8</sup> In Pakistan, the prevalence of HCV in blood donors is found to be between 4-5%.<sup>9</sup> Among pregnant women the reported rates of detection of anti-HCV antibody by enzyme linked immunosorbent assay (ELISA) vary from 0.1% to 4.5%.<sup>10</sup> The prevalence of HBV in developed countries is about 0.2%. Carriage among pregnant women in the UK is 0.1-0.5% but upto 1% in inner city areas<sup>11</sup>. While in the present study, 10.6% patients were hepatitis C positive.

Frequency of anti-HCV among patients with single blood transfusion was 13.2% with multiple transfusion was 15.4% and 6.6% in non-transfused subjects<sup>12</sup>. These results are comparable with findings of our study. Ejiofor et al<sup>8</sup> demonstrated an HCV antibody prevalence of 6.6% among the transfused and 5.3% among the non-transfused

(controls). There was positive association between number of transfusions and HCV seropositivity, such that those who had received 4 or more units of blood had a prevalence rate of more than 50% (P= 0.001).

Hepatitis C virus (HCV) infection is blood borne but only 25% of the infected pregnant women indicate a history of blood products transfusion or intravenous drug use. HCV transmission is 2- to 4-fold higher in women coinfecting with HIV. Although cesarean delivery has not been shown to decrease perinatal transmission, it may have benefits in women with viremia at the time of delivery. During pregnancy, treatment of HCV is contraindicated, even though perinatal transmission is associated with a higher incidence of chronic liver disease<sup>5</sup>. If a mother is HBsAg positive and HBcAg positive, 70 to 90% of her infants will become infected if not given immunoprophylaxis<sup>13</sup>.

## CONCLUSION

Hepatitis C infection among transfused patients is common infection i.e., 10.6%. In our set up, surgical operations and dental procedures are the commonest cause for these infections.

## REFERENCE

1. Su GL. Hepatitis C in pregnancy. *Curr Gastroenterol Rep* 2005;7:45-9.
2. Gutkowska K, Gutkowska D, Lepiech J. Viral hepatitis during pregnancy. *Ginekol Pol* 2006;77:804-10.
3. Hutchinson SJ, Goldberg DJ, King M, Cameron SO, Shaw LE, Brown A, et al. Hepatitis C virus among childbearing women in Scotland: prevalence, deprivation, and diagnosis. *Gut* 2004;53:593-8.
4. Airoldi J, Berghella V. Hepatitis C and pregnancy. *Obstet Gynecol Surv* 2006;61:666-72.
5. Jain S, Goharkhay N, Saade G, Hankins GD, Anderson GD. Hepatitis C in pregnancy. *Am J Perinatol* 2007;24:251-6.
6. Jaffery T, Tariq N, Ayub R, Yawar A. Frequency of hepatitis C in pregnancy and pregnancy outcome. *J Coll Physicians Surg Pak* 2005; 15: 716-9.
7. Acharya SK, Madan KS, Datt S, Panda SK. Viral hepatitis in India. *Nati Med J India* 2006;19:203-17.
8. Ejiofor OS, Ibe BC, Emodi IJ, Ikefuna AN, Ilchukwu GC, Emechebe G, et al. The role of blood transfusion on the prevalence of hepatitis C virus antibodies in children with sickle cell anaemia in Enugu, South East Nigeria. *Niger J Clin Pract* 2009;12:355-8.
9. Ryas M, Hussain T, Tariq WZ, Bhatti FA, Ahmed F, Akhtar S et al. Epidemiology of hepatitis C virus infection in blood donors in Northern Pakistan. *J Rawalpindi Med Coll* 2001;5:56-9.
10. Zanetti AR, Tanzi E, Paccagnini S. Mother to infant transmission of hepatitis C virus. *Lancet* 1995; 345:289-91.
11. Nelson-Piercy C. Liver disease. In: *Handbook of obstetric medicine*. 2nd ed. London: Martin Dunitz; 2002. p.199-202.
12. Rizvi TJ, Fatima H. Frequency of hepatitis C in obstetric cases. *J Coll Physicians Surg Pak* 2003;13:688-90.
13. Stevens CE, Neurath RA, Beasley RP, Szmuness W. HBeAg and anti-HBe detection with radioimmuno-assay: correlation with vertical transmission of hepatitis B virus in Taiwan. *J Med Virol* 1979;3:237-41.

