

Frequency and Determinants of Hepatitis C Virus Infection Among Females Admitted for Gynaecological Surgeries

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ABSTRACT

- Objective** To find out the frequency of hepatitis C virus (HCV) infection and determination of their risk factors in pre-operative gynaecological patients.
- Study design** Case control study.
- Place & Duration of study** Department of Obstetrics and Gynaecology at Fatima Hospital of Baqai University, from July 2009 to June 2011.
- Methodology** All patients admitted either for surgery were routinely screened for hepatitis B and C. The data of sero-positive patients for hepatitis C were taken as test group A and sero-negative patients were taken as control group B. The data were collected through a designed performa and analyzed through SSPS version 16.0. The p value of =0.05 was taken as significant for any individual risk factors responsible for the transmission of hepatitis C infection.
- Results** Frequency of seropositivity in gynaecological pre-operative case was 8.6%. Factors like home deliveries ($p=0.010$), previous surgeries ($p=0.0001$), blood transfusions ($p=0.0001$), husband's seropositivity ($p=0.002$) showed strong association with hepatitis C viral transmission.
- Conclusion** Risk factors, which are usually considered to be responsible for the transmission of hepatitis C viral infection, were found to be significant in our studied population.
- Key words** Hepatitis C, Preoperative patients, Screening.

INTRODUCTION:

Approximately 3% of world population is infected with hepatitis C virus, with highest prevalence rate noted in Africa and Asia.¹ This leads to increase incidence of hepatitis C in general population and so in gynaecological patients. Hepatitis C infection contributes 20-40% of all viral hepatitis with high prevalence of carrier state. More than 70% of these patients progress to chronic hepatitis C with serious complications.

The incidence in United Kingdom and United States of America is very low i.e. less than 3%, but in Egypt, it is a major health issue.² In Pakistan, still it is in a range of 4-6% in general population. The prevalence of hepatitis C according to provinces is different and

was found to be high in Punjab and Sindh (i.e. 5-6%).³ Hepatitis C virus has been detected in saliva, blood, urine, breast milk, semen, infected wounds, menstrual blood, transfused blood and blood products. Therefore, vertical, horizontal and sexual transmission have been suggested as potential routes for the transmission of HCV.⁴ In gynaecology, the risk of transmission in assisted reproductive technique is 5.2%, but in general the magnitude of risk is still unknown.⁵

Routine screening before any surgical intervention reduces the potential risk for its transmission, which is a part of standard of care.⁶ The aim of this study was to determine the frequency of hepatitis C with associated known risk factors, responsible for its transmission in gynaecological pre-operative patients.

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METHODOLOGY:

This was a case control study, conducted at Baqai Medical University, at Fatima hospital, in the Department of Obstetrics and Gynaecology from July

2009 to June 2011. The purpose and procedure of the study were explained to all patients before inclusion in this study. All women between age >19 year and < 70 year, were admitted for pre-operative assessment and routinely screened for hepatitis C on third generation ELISA. Detailed history with regards to various risk factors such as mode of deliveries, past history of any surgery, past history of blood transfusion or husband seropositivity for hepatitis C particularly in seropositive patients, were noted. Previous history of jaundice as well as comorbidities like type 2 diabetes, obesity and hypertension were also recorded. Consultation with hepatology unit of Baqai Medical University at Nazimabad campus, was done for all hepatitis C seropositive patients for their detailed evaluation and management plan. All pregnant women were excluded from this study. All information were recorded through a designed proforma. Data processing was done through SPSS version 16.0 and was statistically analyzed by Chi-Square tests. Frequencies and percentage were calculated. P-value, less than or equal to 0.05 was taken as significant.

RESULTS:

There were 531 patients, out of which 46 were HCV seropositive (i.e Test group) whereas 485 (Control group) patients were seronegative. Frequency of hepatitis C seropositivity in this study was 8.6%. Factors having strong association with seropositivity were hospital delivery (p=0.010), history of previous surgery (p=0.000), previous blood transfusion (p=0.000), previous history of jaundice (p=0.06) and husbands history of HCV (either seropositivity or as treated or untreated cases of chronic hepatitis C) (p=0.002). Co-morbidities, like age=40 year, diabetes, hypertension and obesity had shown a positive association with hepatitis C (p=0.005).

DISCUSSION

The frequency of hepatitis C in Pakistan is 4.7% (varying from 0.4-33.7%) indicating the pockets of infection. This frequency is significantly higher than in the neighbouring countries.⁷ According to Pakistan Medical Research Council (PMRC) Survey 2008, province of Sindh had 5.0-6.0% frequency in its 16 districts.⁸ This study was restricted to a local population of Gadap town and surrounding catchment area of Baqai Medical University, and it included only non pregnant females between 19 to 70 year age. These patients were admitted for various gynaecological pathologies. The frequency of HCV in this study group was 8.6%, which was high in comparison with seropositivity of female gynaecology patients admitted in Ghurki hospital, Lahore.⁹ The prevalence among females of specific age group and specific population is still unclear in Pakistan.¹⁰ The prevalence of hepatitis C, especially in female population can be predicted by various risk factors involved in the transmission of HCV infection.¹¹ In pregnant women, the seroprevalence was found to be 2.4-3.27%.¹²⁻¹³

In this study, the mean age of hepatitis C seropositivity was 37.5 year. This may be due to fact that frequency of HCV increases with age.¹⁴ There may be more chance of exposure to the various risk factors responsible for HCV transmission. In developing countries various risk factors particularly multiple blood transfusions and unsterilized surgical and dental instruments are the main source of transmission of hepatitis C virus.

Poor health and low educational standard in Pakistan also contribute.¹⁵ Leiken et al reported age, parity, previous blood transfusion, surgical interventions, history of jaundice and injections by quacks as the risk factors for HCV transmission, which were also

Table I: Association of Risk Factors Among Cases (HCV Positive) and Control (HCV Negative)

Risk factors	Test group n=46	Control group n=46	p-value
Hospital delivery	15 (32.6%)	83 (17.1%)	0.010
Home delivery	31 (67.4%)	397 (81.9%)	0.180
Previous surgery	21 (45.7%)	58 (12.0%)	0.000
Blood transfusion	18 (39.1%)	23 (4.7%)	0.000
H/O jaundice	04 (8.7%)	16 (3.3%)	0.066
Husband's seropositivity or treatment of hepatitis C	09 (19.6%)	33 (6.8%)	0.002
Co-morbidities (diabetes, obesity, Hypertension)	11 (23.9%)	49 (10.1%)	0.005

noted in this study.¹⁶

Epidemiologically, HCV infection may be a surrogate marker for other high risk behavior or factors.¹⁷ Volunteer blood donors in a community and HCV prevalence in these individuals are the true reflection of a general population health.¹⁸ This study has shown the significant results, probably as patients had history of multiple transfusions in the past due to various obstetrical complications like anaemia and PPH.¹⁹ It has been reported from US that up to 20% of new HCV cases were due to lack of awareness about sexually transmitted diseases and use of condoms for contraception.²⁰

CONCLUSION:

The commonly known risk factors for the seroprevalence of hepatitis C were also found to be significant in this study.

REFERENCES:

1. Waheed Y, Shafi T, Safi SZ, Qadri I. Hepatitis C in Pakistan. A systematic review of prevalence, genotype and risk factors. *World J Gastroenterol* 2009;15:5647-53.
2. Wasley AD, Alter M.J. Epidemiology of hepatitis C. *Semin Liver Dis* 2000;20:1-16
3. Shah NH, Shabbir G. A review of published literature on hepatitis B & C virus prevalence in Pakistan. *J Coll Physicians Surg Pakistan* 2002;12:368-71.
4. Faridullah SM, Malik IA, Hussain I. Increasing prevalence of chronic hepatitis and associated risk factors. *Pakistan J Med Research* 2002;41:46-50.
5. Chu MC, Pena JE, Nakhuda GS, Thronton MH. ASRM guidelines 2004. *Arch Gynaecol Obstet* 2006.
6. Laurer GM, Walker BD. Hepatitis C infection. *N Eng J Med* 2001;345:41-51.
7. Hepatitis C in Pakistan a reviewable data. *Hepatitis* 2010;10:205.
8. Qureshi H. PMRC survey report. PSSLD 2008.
9. Akhtar A, Talib W, Shami N, Anwar S. Frequency of hepatitis C in admitted patients of obstetrics and gynaecology at Ghurki Trust Teaching hospital Lahore. *Ann King Edward Med Coll* 2006;2:254-6.
10. Gulfareen H, Nishat Z, Aftab A.M. Hepatitis C frequency risk factors and pregnancy outcome. *J Surg Pakistan* 2009;14:33-7.
11. Yen T, Keefe EB, Ahmed A. The epidemiology of hepatitis C viral infection. *J Clin Gastroenterol* 2003;36:47-53.
12. Jaffery T, Tariq N, Ayub R, Yaner A. Frequency of hepatitis C in pregnancy and pregnancy outcome. *J Coll Physicians Surg Pakistan* 2005;15:716-9.
13. Sheikh F, Naqvi SQH, Jilani K, Memon RAD. Prevalence and risk factors for hepatitis C virus during pregnancy. *Gomal J Med Sci* 2009;7:286-8.
14. Stevens CE, Tayler PE, Puidyek J, Choo QL, Dradley DW, Kuo G, et al. Epidemiology blood donors. *JAMA* 1990;263:49-53.
15. Hamid S, Umer M, Alam A, Siddiqui A, Qurashi H, Butt J. PSG: Consensus statement on management of hepatitis C viral infection 2003. *J Pak Med Assoc* 2004;54:146-50.
16. Touqir A, Mohammad SS, Farah K, Sidra N. Comparison of outcome among pregnant women with hepatitis C virus and without hepatitis C. *Pakistan J Surg* 2010;26:4:304-7.
17. Nayab B, Shehnaz A, Mussarat B. Spectrum of HCV positive cases in Gynae unit Jinnah post graduate medical institute. 2002,16:68-71.
18. Akyar S, Rozi S. An autoregressive integrated moving average model for short term prediction of hepatitis C virus seropositivity among male volunteer blood donor in Karachi, Pakistan. *World J Gastroenterol* 2009;15:1607.
19. WHO: Unsafe injection practice having serious large scale consensus. WHO/14.Geneva.WHO 2000;pp.1-20.
20. Saleem N H, Adrien A, Razaque A. Risky sexual behavior, knowledge of sexually transmitted infection and treatment utilization among a vulnerable population in Rawalpindi. *Pakistan. Southeast Asian. J Trop Med Res.* 2004;43:113-6.