

FREQUENCY OF HEPATITIS C AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE UNIT AT BOLAN MEDICAL COLLEGE HOSPITAL QUETTA, PAKISTAN

Ghazala Noor¹, Inamullah Kakar[✉]

ABSTRACT

BACKGROUND: The world wide prevalence of hepatitis C infection in pregnant women is estimated to be between 1 and 8% and in children between 0.05 and 5%. Hepatitis C virus is one of the major etiological agents of parentally acquired hepatitis. Objective of this study was to determine frequency of Hepatitis C among pregnant women attending antenatal care unit at BMCH Quetta.

METHODS: This Cross sectional study was conducted at the Department of Obstetrics & Gynaecology, Bolan Medical Complex Hospital, Quetta over a period of six months, from 9th August 2013 to 9th February 2014. 595 sample size was obtained. All patients were advised to have anti HCV antibodies by ELISA 3 (Enzyme Linked Immune Sorbant Assay). From positive anti HCV antibody patient, a detailed history was taken with special reference to search for presence of risk factors i.e. (blood transfusions, place of previous delivery, previous surgery, use of I/V medicines) and any family member with positive anti HCV positive antibody.

RESULTS: The mean age of the patients was 26.1±4.5 years. The mean gestational age of the patients was 28.3±7.3 weeks. There were 41 (6.9%) patients had anti-HCV positive. There were 3 (7.3%) patients had history of previous blood transfusion, 4 (9.8%) patients had previous surgery, 3 (7.3%) patients had history of intravenous medicine used, 2 (4.9%) patients had child anti-HCV positive and 3 (7.3%) patients had any family member anti-HCV positive.

CONCLUSION: It is concluded from this study that HCV is a common infection in pregnant women. Risk factors include blood transfusion, previous surgery and history of IV medicine used leads to transmission of infection.

KEY WORDS: Hepatitis C, Pregnant women, Blood transfusion.

✉ Epidemiologist –Directorate of Malaria Control, Islamabad, Pakistan.

@ inamkakar@hotmail.com

☎ 0321-8019772

1. Bolan Medical Complex, Quetta, Pakistan.

Received: Oct 5, 2017, Revised: Dec 10, 2017, Accepted: Dec 15, 2017

INTRODUCTION

Hepatitis C Virus is major public health problem worldwide as well as in Pakistan. Hepatitis C Virus was first identified in 1989, Infection with this virus is a major cause of chronic hepatitis cirrhosis and hepatocellular carcinoma around the world¹ Hepa-

titis C virus is a single stranded virus in the flaviviridae family² Chronic infection with hepatitis C has become a world wide health problem, Anti HCV antibodies are detected in 1-2% of people residing in Europe, USA, Taiwan and Australia. Its frequency is higher in North Africa, where it fluctuates between 15 and 17%³. There

are estimated 300, million carriers of the virus all over the world⁴.

The world wide prevalence of hepatitis C infection in pregnant women estimated to be between 1 and 8% and in children between 0.05 and 5%⁵ Hepatitis C virus is one of the major etiological agents of parentally acquired hepatitis.

HCV infection is asymptomatic in a large proportion of cases (65-75%) and revealed only accidentally by abnormal liver function test and/or anti HCV positivity. Approximately 7-8% of hepatitis C virus positive women transmit this virus to their off springs (vertical transmission)⁶⁻⁷. In Pakistan 10 million people are presumed to be infected with HCV⁸, little is known about hepatitis C Virus infection in pregnant women in India, the seroprevalence of Anti HCV antibody in the healthy general population of India was found to be 1.5% each in 234 voluntary blood donors and 65 pregnant women⁶.

In Pakistan few studies have been done on pregnant population like in Swat where the prevalence of anti HCV in pregnant women was 2.52%⁹ & in Karachi it was 5.79%¹⁰. In Nawabshah prevalence was 3.44% and out of 102 women positive for HCV antibodies 9.8% had delivery, 18.62% had previous surgery, 19.60% had blood transfusion and 5.86% received injections⁷. In Multan prevalence of anti HCV was 7%, among 35 anti HCV positive women 57.14% had history of previous surgery, 37.14% had history of multiple injections and 14.28% received blood transfusion¹¹.

Pregnant women use more health care and are expected to be the major victim of HCV infection because of greater exposure to syringes, minor & major surgeries, blood & blood products especially during pregnancy & delivery.

Although local studies are available on this subject but were done on a small sample size. And few studies were done on retrospective data and as quality of data is not as good as collected properly. Therefore based on these studies, result cannot be generalized. Therefore the present study is designed with the larger

sample size so that actual burden of HCV and factors leading to it could be assessed. Furthermore strategies could be made to screen all women for HCV & factors leading to it. There by promoted treatment could lead to decrease the morbidity. This study was conducted to determine frequency of Hepatitis C among pregnant women attending antenatal care unit at BMCH Quetta.

MATERIAL & METHODS

This cross-sectional study was conducted over a period of six months(- from 9th August 2013 to 9th February 2014) at the Department of Obstetrics & Gynaecology, Bolan Medical Complex Hospital, Quetta.595 pregnant women were required for estimated prevalence of Hepatitis C of 2.52%9 with 95% confidence level and estimated margin of error 1.26%.

All Antenatal women aged between 20 to 35 with any period of gestation, both primi and multi gravida, attending antenatal care unit at BMCH Quetta and willing to participate were included in the study. Patient who were already diagnosed as a case of any type of hepatitis were excluded from the study. Non-probability consecutive sampling technique was used to get the required sample size.

Eligible antenatal women coming to antenatal clinic or directly to labour room at BMCH Quetta were enrolled in the study. Informed consent was taken for inclusion in the study after explaining the purpose, procedure, risk and benefit of the study. All the patients were advised to have anti HCV antibodies by ELISA 3 (Enzyme Linked Immune Sorbant Assay). The diagnostic criteria was positive anti HCV anti bodies by ELISA 3. In positive anti HCV anti body patient, a detailed history was taken with special reference to search fro presence of risk factors i.e. (blood transfusions, place of previous delivery, previous surgery, use of I/V medicines) and any family member with positive anti HCV positive antibody. The test was performed by a single nominated lab (BMCH main pathology Lab) by single pathologist heaving more than five year of experience. All the variables like, age,

HCV positive /negative status, family history and risk factors were entered in the proforma attached.

The data was entered and analyzed through SPSS version 19.0. Mean and standard deviation was calculated for quantitative variable like age of the women and gestational age. Frequency and percentage was calculated for categorical/qualitative variable like Hepatic C (+/-) status, previous history of blood transfusion and risk factors (previous surgery, and IV Medicine. The result was presented in the form of tables.

RESULTS

The mean age of the patients was 26.1±4.5 years. The mean gestational age of the patients was 28.3±7.3 weeks. There were 119 (20.0%) patients in the gestational age range of 15-20 weeks, 128 (21.5%) patients in the gestational age range of 21-25 weeks, 84 (14.1%) patients in the gestational age of 26-30 weeks, 134 (22.5%) patients in the gestational age range of 31-35 weeks and 130 (21.9%) patients in the gestational age range of 36-40 weeks

TABLE 1: ELISA RESULTS OF STUDY PARTICIPANTS (n=595)

Anti-HCV	No. of patients	Percentage
Positive	41	6.9%
Negative	554	93.1%
Total	595	100.0

TABLE 2: EXPOSURE HISTORY OF HCV+ PATIENTS

Previous history of blood transfusion	No. of patients	Percentage
Yes	3	7.3%
No	38	92.7%
Total	41	100.0
Previous surgery		
Yes	4	9.8%
No	37	90.2%
Total	41	100.0
IV medicine used		
Yes	3	7.3%
No	38	92.7%
Total	41	100.0
HCV+ child		
Yes	2	4.9%
No	39	95.1%
Total	41	100.0
HCV+ family member		
Yes	3	7.3%
No	38	92.7%
Total	41	100.0

DISCUSSION

Worldwide viral hepatitis is the commonest cause of hepatic dysfunction in pregnancy. Pakistan is highly

endemic for hepatitis B & C^{12,13}. In our study the frequency of HCV was 6.9% while prevalence of HCV in de-

veloped countries is 0.68% to 0.98%, 0.95 in Taiwan and 0.7% in Italy^{14,15}. A study conducted on pregnant women from inner city of London showed a prevalence of 0.8%.¹⁶ A study from Japan showed a prevalence of HCV as 7.1%¹⁷. A similar study in central Asia revealed a seroprevalence of 19%¹⁸.

Another study from Swat, Pakistan in 2009 revealed the frequency among pregnant women to be 2.5%,¹⁹ while our incidence is 6.9% which is higher. Prevalence of hepatitis C among 300 pregnant women in prenatal clinic of Lady Aitchison Hospital Lahore was found to be 6%²⁰. In a study from Northern Italy, the principle risk factors were history of intravenous drug abuse (32%) and exposure to blood products (24%)²¹.

The highest prevalence of infection occurs among individuals of reproductive age²². Age is a known risk factor for HCV infection. Sero positivity has been reported to be increased until the age 40 and then declines over time²³. This can be explained by the greater probability of exposure of these women to risk factors. In our study the mean age of HCV positive women was²⁶. 1 years. Our finding of the highest age specific prevalence in women aged 21-35 years also compares with other studies. A study in Scotland showed the highest sero prevalence of anti-HCV in women aged 25-29 years²⁴. It is also in agreement with the data from the mandatory reporting system which indicates that peak age specific incidence of HCV infection for women in Switzerland is 20-29 years²⁵.

In a study from Pakistan²⁶ when previous vaginal delivery with episiotomy, previous surgery, blood transfusion and D&C for abortion or dysfunctional uterine bleeding were taken as independent variables, only past history of surgical procedures was found to be the most important factor for transmission of HCV. It has also been reported that in resource poor countries the risk of iatrogenic HCV infection is high²⁷. People who visit regularly for any kind of dental procedure had more prevalence rate of HCV28 as compared to those who do not visit for any kind of dental procedure. Results of our study also show

the history of previous surgery, blood transfusions, history of injections as risk factors.

A study from India in 2007 showed that a substantial proportion 62% of women with HCV had no evidence of exposure to any known risk factors²⁹. This is in accordance with the results of our study.

Universal HCV screening in pregnancy is considered to be unjustified given the absence of an intervention to prevent mother to child transmission.³⁰ In developing countries because of poverty and lack of facilities, women have poor access to the hospitals, so screening for HCV should be carried out during antenatal visits as this might be their only interaction to a health care facility.

In our study the mean age of the patients was 26.1±4.5 years. As compared with the study of Ishaq et al³¹ the mean age of the patients was 30.37 years, which is comparable with our study.

In our study the frequency of hepatitis C was found in 6.9% patients. As compared with the study of Ishaq et al³¹ the frequency of hepatitis C was found in 5% patients, which is comparable with our study. In another study conducted by Shaikh et al⁷ hepatitis C was found positive in 3.44% patients, which is also comparable with our study.

In our study the history of blood transfusion as a factor leading to hepatitis C was found in 7.3% patients. As compared with the study of Ishaq et al¹⁴⁹ the history of blood transfusion was found in 6.25% patients, which is comparable with our study. In another study conducted by Shaikh et al⁷ blood transfusion was found in 19.60% patients.

In our study the history of previous surgery as a factor leading to hepatitis C was found in 9.8% patients. As compared with the study of Ishaq et al¹⁴⁹ the history of previous surgery was found in 10.93% patients, which is comparable with our study.

In our study the history of intravenous medicine used as a factor leading to hepatitis C was found in 7.3% patients. As compared with the

study of Ishaq et al¹⁴⁹ the history of previous surgery was found in 9.37% patients, which is comparable with our study.

It is concluded from the above discussion that HCV is a common infection in pregnant women. Risk factors include contaminated surgical instruments, use of contaminated syringes, and blood products.

CONCLUSION

It is concluded from this study that HCV is common infection in pregnant women. There was a high frequency of HCV sero positivity among pregnant women in this study. Risk factors include blood transfusion, previous surgery and history of IV medicine used leads to transmission of infection. Spread by these routes may be minimized by a protocol followed regarding strict screening, and awareness regarding Hepatitis C should be promoted among health workers and general public.

REFERENCES

1. Contag SA. Hepatitis C in Pregnancy. [Internet] 2011 [cited 2011 Sept 7]. Available from: :http://emedicine.medscape.com/article/1562368-overview
2. Chapman RW, Collier JD, Hayes PC. Liver and biliary tract disease. J Davidson's principles & practice of medicine 2006; 23:967.
3. Valladares G, Chacaltana A, Sjogren MH. The management of HCV-infected pregnant women. Ann Hepatol 2010; 9:92-7.
4. Khale AQ, Youssef A, Metwally MA, Ragih I, Hamid MA, Shaheen AA. Prevalence and risk Factors for hepatitis C in pregnant Egyptian women. J Obstet Gynecol 2010; 51:219-28.
5. Arshad M, El-Kumary SS, Jhaveri R. Hepatitis C virus infection during pregnancy. J Viral Hepat 2011; 18: 229-36.
6. Kumar A, Sharma KS, Gupta RK, Kar P, Chakravarti A. Prevalence and risk factors for hepatitis C virus among pregnant women. Indiar's J Med Res 2007;126:211-5.
7. Shaikh F, Naqvi SQ, Jilani K, Memon A. Prevalence and risk factors for hepatitis C virus during pregnancy. Gomal J Med Sci 2009;7:86-8.
8. Waheed Y, Shafi T, Zaman S, Qadri I. Hepatitis C virus in Pakistan. J Gastroenterol 2009;15:7.

9. Khattak ST, Ali Marwat M, Khattak IU, Khan TM, Naheed T. Comparison of frequency of Hepatitis B and Hepatitis C in pregnant women. *J Ayub Med Coll Abbottabad* 2009; 21:12-5.
10. Aziz S, Hossain N, Karim SA, Raiper J, Soomro N, Noorulain W, et al. Vertical transmission of hepatitis C virus in pregnant population. *Hepato Int* 2011; 5:677-80.
11. Taseer IU, Ishaq F, Hussain L, Safdar S, Mirbahar AM, Faiz SA. Frequency of Anti-HCV, HBsAg and related risk factors in pregnant women. *J Ayub Med Coll Abbottabad* 2010; 22:13-6.
12. Bukhari SM, Khatoon N, Iqbal A. Prevalence of Hepatitis B antigenemia in Mayo Hospital Lahore. *Biomedica* 1999;15:88-91.
13. Shah NH, Shabbir G. A review of published literature on hepatitis B and C virus prevalence in Pakistan. *J Coll Physicians Surg Pak* 2002;12:368-71.
14. Ohto H, Terazama S, Sasaki N. Transmission of hepatitis C virus from mother to infant. *N Eng Med J* 1994;330:744-50.
15. Manzini P, Saracco G, Cherchier A. Human Immunodeficiency virus infection as risk factor for mother to child virus transmission. *Pew resistance of anti hepatitis virus in children is associated with the mother anti Hepatitis C virus immunoblotting pattern. Hepato Int* 1995;21:328-32.
16. Ward C, Williams GT, Cotzias T, Hargreaves S, Regan L, Foster GR. Prevalence of hepatitis among pregnant women attending an inner London obstetric department: uptake and acceptability of named antenatal testing. *Gut* 2000;47:277-80.
17. Sypsa VE, Hadjipaschali E, Hatzakis A. Prevalence, risk factors and evaluation of a screening strategy for Hepatitis C and B virus infections in healthy company employees. *Euro J Epidemiol* 2000;17:721-3.
18. Njouom R, Pasquier C, Ayouba A, Sandres-Saune K, Mfoupouendun J, Mony Lobe M, et al. Hepatitis C virus infection among pregnant women in Yaounde, Cameroon: prevalence, viremia and genotypes. *J Med Virol* 2003;69:384-90.
19. Khattak ST, Marwat MA, Khattak ID, Khan TM. Comparison of frequency of hepatitis B and hepatitis C in pregnant women in urban and rural area of district Swat. *J Ayub Med Coll Abbottabad* 2009;21:12-15.
20. Zafar MAF, Mohsin A, Husain I, Shah AA. Prevalence of hepatitis C among pregnant women. *J Surg Pak* 2001;6:32-3.
21. Conte D, Fraquelli M, Prati D, Colucci A, Minola E. Prevalence and clinical course of chronic hepatitis C virus (HCV) infection and rate of HCV vertical transmission in a cohort of 15,250 pregnant women. *Hepatology* 2000;31:751-5.
22. Wasley AD, Alter MJ. Epidemiology of hepatitis C. *Semin Liver Dis* 2000;20:1-16
23. Stevens CE, Taylor PE, Pindyc J, Choo QL, Bradley DW, Kuo G et al. Epidemiology of hepatitis C virus: A preliminary study in voluntary blood donors. *JAMA* 1990; 263:49-53.
24. Hutchinson S. Hepatitis C virus among childbearing women in Scotland: prevalence, deprivation, and diagnosis. *Gut*. 2004;53:593-8.
25. Swiss Federal Office of Public Health. Infectious Diseases, Switzerland, 2003.
26. 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.
27. Hutin Y, Hauri A, Armstrong G. Use of injections in health care settings worldwide, 2000: literature review and regional estimates. *BMJ* 2003; 327:1073-8.
28. Champion JK, Taylor A, Hutchinson S, Cameron S, McMenamin J, Mitchell A, et al. Incidence of Hepatitis C virus infection and associated risk factors among Scottish Prison Inmates: A Cohort study. *Am J Epidemiol*. 2004; 159:514-9.
29. Ashok K, Sharma A, RK Gupta, P Kar, Chakravarti A. Prevalence and risk factors for hepatitis c virus among pregnant women. *Indian J Med Res* 2007;126:211-5.
30. Plunkett BA, Grobman WA. Routine hepatitis C virus screening in pregnancy: a cost effectiveness analysis. *Am J Obstet Gynecol* 2005; 192:1153-61.
31. Ishaq T, Khattak IM, Amin S, Najib-ul-Haq. Frequency and risk factors for hepatitis C among pregnant women. *Gomal J Med Sci* 2011; 9:166-9.

CONFLICT OF INTEREST

None declared.

GRANT SUPPORT AND FINANCIAL DISCLOSURE

NIL

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.