FREQUENCY AND RISK FACTORS OF HEPATITIS C VIRUS IN PREGNANT WOMEN ATTENDING MILITARY HOSPITAL RAWALPINDI

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ABSTRACT

Objective: To determine the frequency of anti-Hepatitis C virus antibodies in pregnant ladies attending Military Hospital Rawalpindi and to analyze risk factors for disease acquisition in them.
Study Design: Cross sectional study.
Place and Duration of Study: Department of gynaecology and obstetrics Military Hospital Rawalpindi, from Feb 2013 to Jul 2013.
Material and Methods: All pregnant ladies attending Military Hospital Rawalpindi were tested for anti HCV antibodies by third generation ELISA method and evaluation of potential risk factors for acquisition of HCV infection was done.
Results: Six point ninety five percent of study population was found to be positive for anti HCV antibodies.
Conclusion: Six point nine five percentage of study pregnant ladies were found to have anti HCV antibodies. These HCV positive pregnant women were more likely to have history of blood transfusion, therapeutic injection use and surgery.

Keywords: Hepatitis C virus, Risk factors.

INTRODUCTION

Hepatitis C virus is one of the common bloodborne infection worldwide. Globally hepatitis C virus (HCV) infection prevalence is 2-3%, about 130-170 million people are HCV-positive and most of them are chronically infected[1]. The epidemiology of HCV varies among countries with prevalence of less than 1% in western countries and greater than 2% in African and Asian countries[2]. A study in Pakistan conducted by Umar revealed 3% prevalence of HCV in general population whereas a wide frequency of HCV seroprevalence ranging from 3.3% to 29.1% with overall frequency of 7.3% was observed in pregnant ladies[3]. During pregnancy, maternal immune system develops tolerance to paternal alloantigens to prevent maternal immune aggression against fetus and maintain active immunity against HCV to protect both mother and fetus from infection[4]. But HCV infection in pregnant ladies is associated with cholestasis of pregnancy, intrauterine growth restriction, premature delivery and fetal infection.

The risk factors for acquiring HCV infection are blood transfusion, intravenous (I/V) drug abuse, history of surgery, hepatitis B virus (HBV) and human immunodeficiency virus (HIV) infection, history of sexually transmitted infection (STIs), multiple sexual partners and sexual contact with I/Vdrug users[5]. In Pakistan, hepatitis C is an important public health problem. Therefore, we carried outstudy to determine frequency of HCV infection and to analyze risk factors for acquiring this infection in obstetrics population. This will help us in making policies and preventive strategies against hepatitis C bomb in our population.

The rationale of this study was to determine the frequency and to analyze risk factors of HCV infection in obstetrics population at Military Hospital Rawalpindi.

MATERIAL AND METHODS

The study was conducted in department of gynae/obs Military Hospital Rawalpindi for the

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period of six months from 01-02-2013 to 31-07-2013. Administrative and ethical permission from concerned authorities was sought. This cross sectional survey utilized simple convenient sampling technique for recruitment.

All pregnant ladies attending for antenatal care facilities were included. Total 9,149 patients participated in our study. Screening for anti HCV antibody is a part of routine antenatal laboratory investigations. It is done after informed consent and is free of cost for army personnel and their families. HCV antibodies are tested by ELISA in laboratory of Military hospital Rawalpindi. All the cases were evaluated by detailed history including demographics, obstetrical record and potential risk factors for acquisition of HCV infection. The data was noted down on predesigned performa by the principal author and her team. Confidentiality of anti HCV positive caseswas maintained.

The risk factors which were assessed among cases included history of blood transfusion, surgery (cesarean delivery, dilatation &curettage and laparotomy), prior tooth extraction and parenteral injection/antibiotics use.

Data were analyzed using statistical software SPSS version 10.0. Mean and standard deviation (SD) were utilized to describe quantitative variables like age. Frequency in percentage was calculated for positivity of HCV cases. Percentages were also calculated for four different risk factors in these positive cases.

RESULTS

Total of 9149 pregnant ladies were enrolled in our 6 months study period. The Mean ± SD of age of study group was 27.5 ± 3.24. HCV antibodies were found to be positive in 636 cases (6.95%) whereas 85139 (93.05%) pregnant ladies were seronegative for anti HCV antibodies. Then four different risk factors as per materials and methods were also considered in these positive cases. Out of which parenteral medication was the most frequent observed risk factor followed by history of surgery. Pattern of risk factors are shown in fig.

DISCUSSION

Hepatitis C is a liver disease caused by HCV. Its severity ranges from a mild illness which lasts for a few weeks (acute) to a serious long-term (chronic) illness that can lead to liver cirrhosis or cancer[6]. It is an important cause of morbidity and mortality. Therefore, we should direct our strategies to reduce its transmission. That is why in our study, we aimed at seroprevalence and risk factors of acquiring HCV among obstetric population.

In our study, frequency of HCV status among pregnant ladies was found to be 6.95%. Seema and Saira conducted study in Hyderabad Sindh for seroprevalence of HCV infection which shows seropositivity of 4.7%[7]. Whereas, the nationwide figure of 3.3% to 29.1% is reported in review article by Umer and colleagues[3]. The

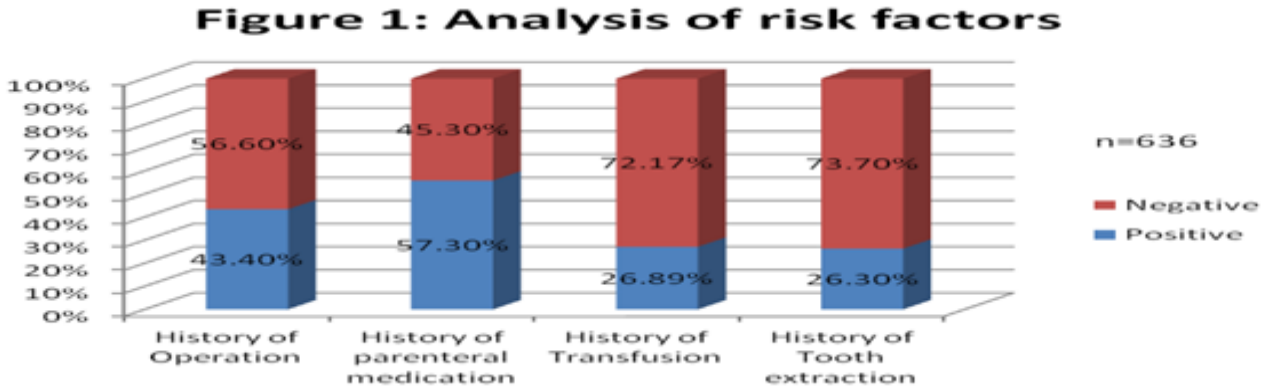

Figure: Analysis of potentential risk factors for HCV infection acquisition.

leading risk factors for acquiring HCV infection all over world are therapeutic injections use, history of surgical procedures and blood transfusion[8-10].

Therapeutic injections and infusions are routinely used in Pakistan. Majority of these injections and infusions are unnecessary and unsafe.A survey regarding therapeutic injections use was conducted at Agha Khan University Hospital Clinics Karachi which showed that about half of patients had history of injections use at their last visit to health care providers and 3.5% of them had received 10 or more injections in the last one year[11]. A similar study conducted in Sindh province by Janjua & colleagues reported as high frequency as 13.6 injections per person per year[12]. Most of injections used are of uncertain sterility. Syringes and needles are recycled and repacked. A survey of sharp waste disposal done in Karachi revealed that many drug stores sell reused and repackaged unsterilized syringes, which could not be differentiated from sterilized syringes[13]. These unsafe injections, needles and syringes are main contributing factors of HCV transmission and prevalence as shown by researches[9,14]. Our study findings strongly support this view.

History of surgery (including Cesarean section, laparotomy, dilatation & curettage and tooth extraction) was another risk factor for HCV spread, identified in our study. As a matter of fact, our population belongs to low socioeconomic status. They seek medical care from local unqualified staff thatdo not practice proper sterilization of equipments and instruments which is main contributing factor for HCV spread. Similar association was also reported by Jaffery T & Colleagues from Shifa International Hospital Islamabad in 2001 and 2002[15].

Blood transfusion is animportant risk factor for spread of blood born infections like HCV, HBV and HIV as evidenced by many researches[16,17]. Our study also highlights this fact. Anemia is very common in our obstetric population. For correction of anemia, pregnant women require blood transfusion. Moreover, for life threatening conditions like postpartum hemorrhage, blood transfusion is necessary.In Pakistan blood transfusion is not according to standard international guidelines because of lack of trained staff and standard operating procedure in blood screening. Moreover, non afford ability of people to pay for screening particularly in our rural areas is another contributor of HCV spread[18]. At government level, strategies for safe blood transfusion should be made and implicated. Public should bemade aware of dangers of unsafe blood transfusions. Blood donor should bevoluntary and unpaid. Only trained staff should be employed in blood bank, screening procedures should be standardized and regular check and balance should be made by government.

A large study in Japan has demonstrated significant decline in hepatitis C prevalence in pregnant ladies, which is a good impact of anti-HCV screening of donated blood[19]. In a cohort studied between May 1990 and November 2004, a total of 22664 consecutive serum samples were screened for anti-HCV. With the implementation of HCV screening, among transfused women rate fell from 14.8% to 3.1% whereas in non-transfused women rate fell from 1.8% to 0.3%. This reduction was due to hygienic improvements including needles for medical injections and single-use acupuncture needles. Even in Upper Egypt, the prevalence of HCV infection has declined in recent years as compared to the 1990s and 2000s[20]. The lower prevalence rates may be due to better health care standard, mandatory testing of blood donors and blood products and careful preoperative measures.

Though the limitations of the study include being hospital based, but as the Military hospital Rawalpindi is a 2500 bed teaching hospital catering for the need of an enormous population within the radius of 500 km, its data gave an insight about prevalence of HCV infection in the population. Moreover, this study was done on

limited scale and RNA was not measured by PCR to see the viral load and vertical transmission risk was also not seen.

CONCLUSION

In our study, we observed that a large number of pregnant ladies have positive anti HCV antibodies. Moreover unsafe blood transfusion, therapeutic injection use and surgical intervention were found to be strongly associated with HCV infection.

Concrete and comprehensive efforts are needed by Pakistani government at all levels to control the spread of HCV infection. Besides promoting awareness in general public as well as health care providers, implementing preventing strategies in health facilities like use of screened blood transfusion, proper sterilization technique and use of disposable syringes will likely improve the worsening situation.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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