

# FREQUENCY OF ANTI HEPATITIS C VIRUS ANTIBODIES AMONGST SANITARY WORKERS IN A TERTIARY CARE HOSPITAL IN PAKISTAN

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## Abstract

**Objective:** To determine the frequency of anti Hepatitis C Virus antibodies in sanitary workers at Military Hospital Rawalpindi and to identify additional risk factors in them for hepatitis C infection.

**Study Design:** Cross sectional study

**Place and Duration of Study:** Department of medicine, Military Hospital (M.H.), Rawalpindi, Pakistan over six months.

**Patients and Methods:** All sanitary workers working at Military Hospital Rawalpindi were tested for anti HCV antibodies by third generation ELISA.

**Results:** Six percent of the study population was found to be positive for anti HCV antibodies.

**Conclusion:** The frequency of anti HCV antibodies is fairly high in sanitary workers, working in this tertiary care hospital studied. HCV infection is more frequent in those sanitary workers who have longer duration of service.

**Keywords :** Hepatitis C, hepatitis C Antibodies, sanitary workers.

## Article

### INTRODUCTION

Hepatitis C Virus (HCV) is one of the most common causes of chronic hepatitis, cirrhosis, and hepatocellular carcinoma.<sup>1</sup>

Health care workers (HCWs) are at increased risk of acquiring this infection by occupational exposure to the contaminated sharps which include needles, syringes, lancets, scalpels and broken glass.<sup>2-7</sup> The average risk of transmission of HCV to health care workers who sustain percutaneous exposure to blood from an anti-HCV antibodies positive patient is 1.8 percent, although rates as high as 6 to 10 percent have been reported<sup>8</sup>. Sharps injuries are a major source of HCV infection among HCWs, accounting for almost 40% of HCV infections in that group, having caused 16,000 infections worldwide in the year 2000 and estimated to result in 145 deaths.<sup>7</sup> The problem is much grave in the developing part of the world, like in our country, where the prevalence of antibodies to HCV in health care workers is 20 folds higher than in the developed countries.<sup>9</sup> Current evidence does not suggest an increased prevalence of HCV infection among healthcare workers once compared with the general population.<sup>10</sup> Seroprevalence studies from western world have noted that on an average approximately one percent of hospital-based health care workers are anti-HCV positive, a rate not different than the general population.<sup>11</sup> Similarly local studies carried out in Pakistan also show that the seroprevalence of HCV infection in HCWs is about 6%<sup>9</sup>, roughly the same as in general population. However there are studies coming up showing that the seroprevalence of HCV antibodies is reasonably higher in hospital workers compared to general healthy population.<sup>12</sup>

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Amongst the health care workers, it is the sanitary staff that is most vulnerable to this infection because they are the most exposed group to the contaminated sharps and at the same time they are the least trained ones. Globally there are only few studies showing the prevalence of HCV in sanitary workers and its comparison with the other health care workers or the general population. In subcontinent and Pakistan, no such study has been done till date, which specifically addresses

sanitary workers as a high risk group for acquiring HCV as a result of occupational exposure. Aim of this study was to determine the frequency of anti HCV antibodies in sanitary staff working at Military Hospital, Rawalpindi.

#### **PATIENTS AND METHODS**

This was a descriptive study performed at Military Hospital (M.H.), Rawalpindi, over a period of 06 months starting from 1st October 2007 to 31st March 2008. All the sanitary workers working at the Military Hospital Rawalpindi were included. Inclusion criteria included a minimum service of 03 years and non-alcoholics. Known cases of chronic liver disease due to causes other than HCV like chronic HBV infection, Wilson's disease & Hemochromatosis etc, were excluded from the study. The resulting sample size was one hundred sanitary workers, including 69 males and 31 females. Serum samples of the study subjects were collected and sent to the Armed Forces Institute of Pathology, Rawalpindi. Samples were tested for the qualitative determination of anti IgM antibodies to HCV by 3rd Generation ELISA (Enzyme Linked Immunosorbent Assays) using CDC diagnostic kits. Results of ELISA for each subject were endorsed in the study Proforma.

#### **Data Analysis Procedure**

Data was analyzed using statistical software SPSS version 10.0. Descriptive statistics were used to describe the data.

#### **RESULTS**

Out of the 100 study subjects tested, six were found to be positive for anti HCV antibodies amongst which 4 were male while 2 were female. Duration of service of positive cases is shown in the table.

**Table: Description of duration of service of HCV positive cases (n=6).**

<b>Duration of service</b>	<b>Anti HCV antibodies Positive</b>
1 to 10 years	1
11 to 20 years	1
21 to 30 years	2
> 30 years	2

#### **DISCUSSION**

Hepatitis C (HCV) virus infection is one of the most important causes of chronic liver disease across the world. Globally, Hepatitis C virus (HCV) infection appears to be endemic in many parts of the world with prevalence of around 3%.<sup>4</sup> In Pakistan, it is estimated that 10 million infected people<sup>13</sup> are infected with HCV based on an average sero-prevalence of 6%.<sup>5</sup> However there may be pockets of much higher prevalence in the country as other smaller studies have reported a population prevalence of 16% from Lahore and 23.8% from Gujranwala.<sup>14</sup>

The health care workers are generally considered to be at a higher risk of acquiring this infection. However the current scientific evidence does not suggest an increased prevalence of HCV infection among healthcare workers,<sup>10</sup> once compared with the general population. Aziz et al.<sup>9</sup> carried out a recent study at civil hospital Karachi to determine the prevalence of various blood borne viral infections including HCV in health care workers. It showed that the prevalence of antibodies to HCV in Health Care Workers (HCWs) was 5.6%. Similarly, Khurram et al. carried out another cross sectional, observational study in public sector hospitals in Rawalpindi and Islamabad. It showed that the Seroprevalence of anti-HCV antibodies in health care workers is 6%.<sup>15</sup> Both these local studies showed that the average prevalence of HCV infection in the health care workers was from 5.6 to 6 %, same as in general Pakistani population, i.e. 6%.<sup>5</sup> This local data is in line with the international research which shows that the prevalence of HCV in HCWs is the same as in general population<sup>10</sup>. A European study carried in Denmark in 2004 showed that HCWs are not at an increased risk of acquiring blood borne infections including HCV because of their exposure to the infected patients.<sup>10</sup> While this was a discussion about all HCWs, very little work has been done to study hospital sanitary

staff as a specific population among HCWs. In 1991, Jaqueti et al. carried out a model study at Madrid, Spain to determine the prevalence of HCV in different groups of hospital staff including the sanitary workers.<sup>16</sup> They found that the prevalence of anti HCV antibodies was 1.7% in the hospital staff. There were no significant differences in the sanitary workers and the non-sanitary workers of hospital staff.<sup>16</sup> In Pakistan, no study has yet been done focusing specifically on the prevalence of HCV in hospital sanitary workers. Our study showed that the frequency of HCV in sanitary workers as determined by the positive anti HCV antibodies is 6%. This is about the same as in general Pakistani population as determined by the largest population based study carried out by Luby et al.<sup>5</sup> in Hyderabad. It was also similar to the prevalence of HCV in the general health care workers in different Pakistani hospitals as determined by Aziz et al.<sup>10</sup> in Karachi and Khurram et al.<sup>16</sup> in Rawalpindi/Islamabad. Our study additionally describes that sanitary workers with longer duration of service have more chances to be positive for Anti HCV antibodies. This was probably due to more exposure to the contaminated sharps with longer duration of service. This signifies that probably acquiring the infection is related to the risk of contaminated sharp injuries. However larger studies are required to describe the exact statistical association between the duration of service and the presence of HCV infection.

### **CONCLUSION**

Though frequency of anti HCV antibodies is as high in sanitary workers as in general population, but those with longer duration of service appear to be at increased risk of developing anti HCV antibodies, probably because of more occupational exposure to the HCV contaminated sharps. We consider, larger studies are needed to know the exact prevalence of HCV infection in health care workers.

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