

## ORIGINAL ARTICLE

# Sero-Prevalence of Hepatitis C Virus at Tertiary Care Hospital in District Bannu

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## ABSTRACT

**Introduction:** Hepatitis C virus (HCV) belongs to the family of Flaviviridae. Hepatitis caused by viruses are the major health problems globally affecting 2 to 15 million people annually. The prevalence of HCV varies from one area to another.

**Objective:** To assess the sero- prevalence of Hepatitis C Virus at tertiary care hospital in district Bannu

**Methodology:** This cross-sectional study was carried out at the department of Medicine, Khalifa Gulnawaz Hospital, Bannu for duration of six months from March 2021 to August 2021. All the information were recorded on the pre-designed proforma. Blood samples were taken from all the patients and sent to the diagnostic laboratory of the hospital for the screening of hepatitis C virus. All the data was analyzed statistically by using SPSS version 24.

**Results:** Totally 444 patients were included in the study. 208 (63.60%) males were sero-positive for HCV and 66 (56.41%) females were sero-positive for HCV. The overall prevalence of hepatitis C was 61.71% (n=274). Most of the HCV positive cases (35.58%) were identified in 49-60 years of age group, followed by 1.83.9% in 37-48 years, 9.23 % 25-36 years and 4.07 13-24 years respectively.

**Conclusion:** Our study concludes that hepatitis C virus is highly prevalent in district Bannu. To gain a better understanding, HCV genotyping study is required to determine which genotypes are circulating and to compare those genotypes to other circulating genotypes in Pakistan.

**Keywords:** Sero-prevalence, Hepatitis C virus, Genotype

## INTRODUCTION

Hepatitis C virus (HCV) belongs to the family of Flaviviridae<sup>1</sup>. Hepatitis caused by viruses are the major health problems globally affecting 2 to 15 million people annually<sup>2</sup>. Globally, about 200 million people are infected by HCV. The sero-prevalence of HCV is 1%, 3-4% and 10-20% in North America, Asian countries and Africa and Egypt respectively<sup>3</sup>. The most usual mechanism of spread for HCV is considered to be parenteral, such as intravenous drug usage, reuse or poor sanitation of medical devices, transfusions of unscreened blood, transmission by sex and transmission from mother-to-child which is not commonly reported<sup>4</sup>.

There are three main genotypes of HCV having global distribution. Their prevalence varies from one area to another. The most common prevalent genotypes are HCV-1a and 1b, in United States and Europe<sup>5,6</sup>.

HCV has a high level of genetic variability, which may have substantial consequences for diagnosis, etiology, therapy, and development of vaccine. To study the development and epidemiology of the HCV, the identification of HCV genotypes, subtypes, and isolates has been beneficial. It also plays a significant role in the pretreatment assessment of patients<sup>7</sup>.

The prevalence of HCV has been observed to be widely varied in various locations, and even within the same community, across different people groups<sup>8</sup>. The HCV prevalence varies in different provinces of Pakistan with high prevalence (5-6%) in the Punjab and Sindh province<sup>9</sup>. The sero-prevalence of hepatitis C in Islamabad, Peshawar, Lahore and Faisalabad are 5.31%, 13.4%, 15.9% and 20.6% respectively<sup>5,10,11</sup>. The prevalence of HCV in major cities of KPK like Peshawar, Buner, Mardan and Abbotabad are 13.4%, 4.57%, 3.69% and 8% respectively<sup>10</sup>. Based on literature search, no study has been conducted on sero-prevalence of hepatitis C virus in district Bannu. This study was therefore conducted to determine the sero- prevalence of Hepatitis C Virus at tertiary care hospital in district Bannu.

## MATERIALS AND METHODS

This cross-sectional study was piloted at the medicine department, Khalifa Gulnawaz Hospital, Bannu. The study duration was six months from March 2021 to August 2021. The study approval was given by the research and ethical committee of the hospital. The inclusion criteria for our study were all the patients of both the gender suspected for hepatitis C virus while the exclusion criteria were patients suspected for other problems. A total of 444 patients were included in the study. An informed consent in written was signed from all the participants. All the information were recorded on the pre-designed proforma. Blood samples were taken from all the patients and sent to the diagnostic laboratory of the hospital for the screening of hepatitis C virus through ICT kit, The ACON one-step anti-HCV test strip (ACON Lab. INC. USA). All the data was analyzed statistically by using SPSS version 24. For qualitative data mean (SD) were calculated while for quantitative data, frequency (percentages) were calculated.

## RESULTS

Totally 444 patients were included in the study. Out of 444 samples, 327 (73.65%) were male and 117 (26.35%) were female subjects. On the basis of age they were categorized into four groups. The mean (SD) age in our study was 51.11 (5.23) years with minimum of 13 years and maximum age of 59 years. Amongst 327 male participants, 208 (63.60%) were sero-positive for HCV while amongst 117 female participants, 66 (56.41%) were sero-positive for HCV. (Figure 1) The age wise prevalence of hepatitis C virus is given in table 1. The overall prevalence of hepatitis C was 61.71% (n=274). Most of the HCV positive cases (35.58%) have been identified in 49-60 years of age group, followed by 1.83.9% in 37-48 years, 9.23 % 25-36 years and 4.07 13-24 years respectively.

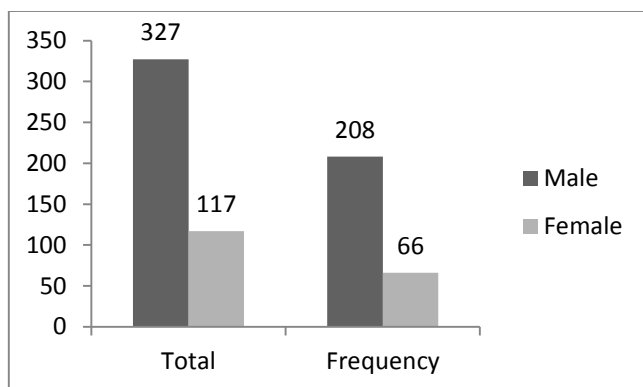


Figure 1: Gender wise prevalence of hepatitis C virus

Table 1: Age wise prevalence of hepatitis C virus

Age group (year)	No of total subject (%)	No. of positive cases (%)
13-24	32 (7.2)	18 (4.07)
25-36	78 (17.6)	41 (9.23)
37-48	96 (21.6)	55 (12.83)
49-60	238 (53.6)	158 (35.58)
Total	444 (100)	274 (61.71)

## DISCUSSION

Infection with the hepatitis C virus is a major public health concern in developing nations such as Africa, India, and Pakistan<sup>12</sup>. Khyber Pakhtunkhwa is located in the north-western part of the Pakistan. After Baluchistan, it has the second weakest economic condition<sup>13</sup>. As a result, the spread of blood-borne viruses like HCV is understandable since screening and sterilizing facilities are not up to grade. HCV is categorized into six main categories and a number of subtypes<sup>14</sup>. For clinical care, such as estimating prognosis and treatment duration, as well as for vaccine development, understanding the disease subtypes is necessary. It is estimated that 3% of the world's population has been infected with the Hepatitis C Virus, according to the World Health Organization<sup>15</sup>. The purpose of the research was to find out how common HCV is in the district Bannu. Women were underrepresented in prior research due to societal and religious restrictions, as well as decreased exposure to risk factors such as intravenous drug abuse and illegal sexual practices. In a previous study, just two females from the whole population were tested for HCV infection in a research done in KPK in 2011<sup>16</sup>. The percentage of male individuals in our research was similarly higher than that of female subjects. In Pakistan the prevalence of HCV is highest ranging from 2.4% - 6.5% amongst adults and amongst children it ranges from 0.44% to 1.6%<sup>17, 18</sup>. The HCV prevalence varies in different provinces of Pakistan with high prevalence (5-6%) in the Punjab and Sindh province<sup>9</sup>. The sero-prevalence of hepatitis C in Islamabad, Peshawar, Lahore and Faisalabad are 5.31%, 13.4%, 15.9% and 20.6% respectively<sup>5,10,11</sup>. Based on literature search, no study has been conducted on sero-prevalence of hepatitis C virus in district Bannu. The prevalence of HCV in major cities of KPK like Peshawar, Buner, Mardan and Abbottabad are 13.4%, 4.57%, 3.69% and 8% respectively<sup>10</sup>. In our study, the overall prevalence of hepatitis C was 61.71% (n=274). Most of the HCV positive cases (35.58%) have been identified in 49-60 years of age group, followed by 1.83.9% in 37-48 years, 9.23 % 25-36 years and 4.07 13-24 years respectively. A previous study done in Pakistan also reported comparable results and observed high sero-prevalence of HCV in old age patients as compared to young age group<sup>10</sup>. Lack of knowledge, unhygienic and unsterilized syringe usage, frequent use of razors and contaminated scissors might be the risk factors associated with this high prevalence. In our study, amongst 327 male participants, 208 (63.60%) were sero-positive for HCV while amongst 117 female participants, 66 (56.41%) were sero-positive for HCV. Males have a higher

prevalence of hepatitis C than females, which may be attributed to their increased exposure to the outside environment. This study only determines the sero-prevalence of HCV which is the major limitation of this study. Another study with large sample size should be conducted to determine the factors associated with the prevalence of HCV in district Bannu.

## CONCLUSION

Our study concludes that hepatitis C virus is highly prevalent in district Bannu. To gain a better understanding, HCV genotyping study is required to determine which genotypes are circulating and to compare those genotypes to other circulating genotypes in Pakistan. In addition, health professionals are needed for HCV awareness campaigns, as low literacy may be a contributing factor to the high prevalence.

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