

# Demographic Aspects of Hepatitis C in Northern Pakistan

Pages with reference to book, From 198 To 201  
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## Abstract

**Objective:** To find out the prevalence of hepatitis C in various, age, sex and ethnic groups in Pakistan.

**Setting:** Specimens obtained from military/civil hospitals and General Practitioners of Rawalpindi Islamabad, region and other areas of Northern Pakistan, in vicinity.

**Subjects:** Serum of 1710 patients of hepatitis C, diagnosed at Armed Forces Institute of Pathology (AFIP), Rawalpindi between 1st July 1996 and Dec 31, 1997, tested for Anti HCV by 3rd generation Murex Elisa. Required information was collected on a proforma filled for each patient.

**Results and Conclusion:** The majority of the cases were between 30-60 years of age. There was male Urdu speaking fraction of the patients as compared preponderance. The infection was more common in with others (JPMA 49:198, 1999).

## Introduction

Hepatitis C virus is a newly discovered agent which was identified in 1988<sup>1</sup>. The virus has an RNA genome, which is linear, unfragmented and single stranded with positive polarity. It possesses six genotypes with more than 30 subtypes so far known. The viral genotypes have epidemiological, clinical and therapeutic significance<sup>2</sup>.

The HCV is mainly transmitted by parenteral route such as blood transfusions, parenteral use of blood products, injection with contaminated needles and syringes, occupational exposure and re-use of contaminated needles, syringes, and sharp instruments. A small minority of the cases occurs through transmission by sexual contact and similarly materno-foetal transmission is not a frequent occurrence. There is a reasonable percentage of the patients with an ongoing HCV infection who do not have any known factor and their mode of acquisition of HCV remains undetermined. They may constitute one third of the total cases. These cases are termed as sporadic or community acquired<sup>3,4</sup>. Out of the total infected patients, 80% develop chronic liver disease. The propensity of HCV in causing persistent infection is probably related to its extremely high mutation rate and its existence as multiple quasi-species each slightly different in sequence from the others<sup>5,6</sup>.

Interferon-alpha (an antiviral agent) has shown some promise in the treatment of infection but the response to the treatment is there only in a limited percentage of the cases and that is not a sustained response and relapse occurs in about 50% of them, who had initially responded.

Studies have also been carried out to evaluate the efficacy of Interferon. Prolonged combination therapy of Interferon and Ribavirin has been suggested on case to case basis for a better response<sup>7</sup>. Studies have been conducted worldwide in the segments of population like, recipients of blood and blood products, I/V drug users, patients on haemodialysis, patients having undergone surgical procedures in the past, blood donors and representative groups of general population. Prevalence in different age, sex and ethnic groups has also been analyzed.

These have revealed different results because of the variety of prevalent genotypes and other demographic factors. A few studies on prevalence in different segments of population with high risk of infection, general population, blood donors and in different ethnic groups have been carried out by

various workers in Pakistan, but there is still a lot to do to reach at definite conclusions regarding the epidemiological pattern of disease in our setup. This necessitates the probing into its various aspects from different angles, which might help in understanding and control over the menace in our setup.

## **Material and Methods**

One thousand seven hundred and ten patients of Hepatitis C referred to AFIP from Military and combined Military Hospitals of Rawalpindi, Civil Sector and from Service Hospitals (both civilian and service personnel) all over Pakistan from 1st July 1996 to December 31st 1997 were included in this study. They were Anti HCV positive and had biochemical ultrasonographic or histological findings characteristic of chronic liver disease. The patients with primary liver cancer were excluded.

The relevant details regarding the age, sex and ethnic distribution and other clinically important informations were recorded on a proforma filled for each patient.

Blood was collected in sterile disposable, syringes taking necessary precautions, sera were separated, labeled and stored in retrievable fashion until analyzed.

The specimens of the patients were tested for the antibodies with third generation ELISA technique followed by RIBA (Recombinant Immunoblot assay) in certain difficult cases where results on ELISA were equivocal.

## **Results**

The information collected on proforma was analyzed as per objectives of our current study. Age, sex and ethnic distribution of the cases was determined. The problem was more in the young males and Urdu speaking fraction of population had a higher percentage of Anti HCV positivity as compared to other ethnic groups. The findings have been represented graphically as figures 1 to 4.

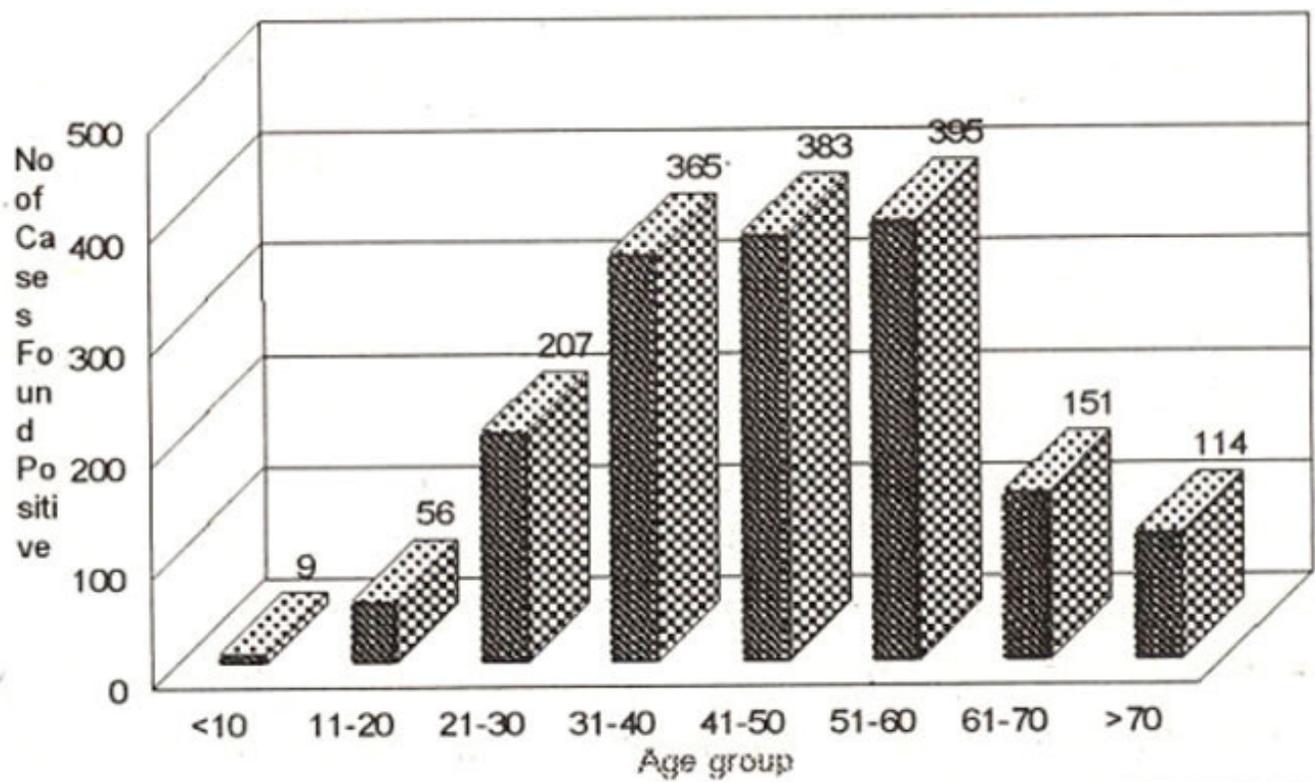


Figure 1. Age distribution of anti HCV positive cases.  
Total positive cases = 1710

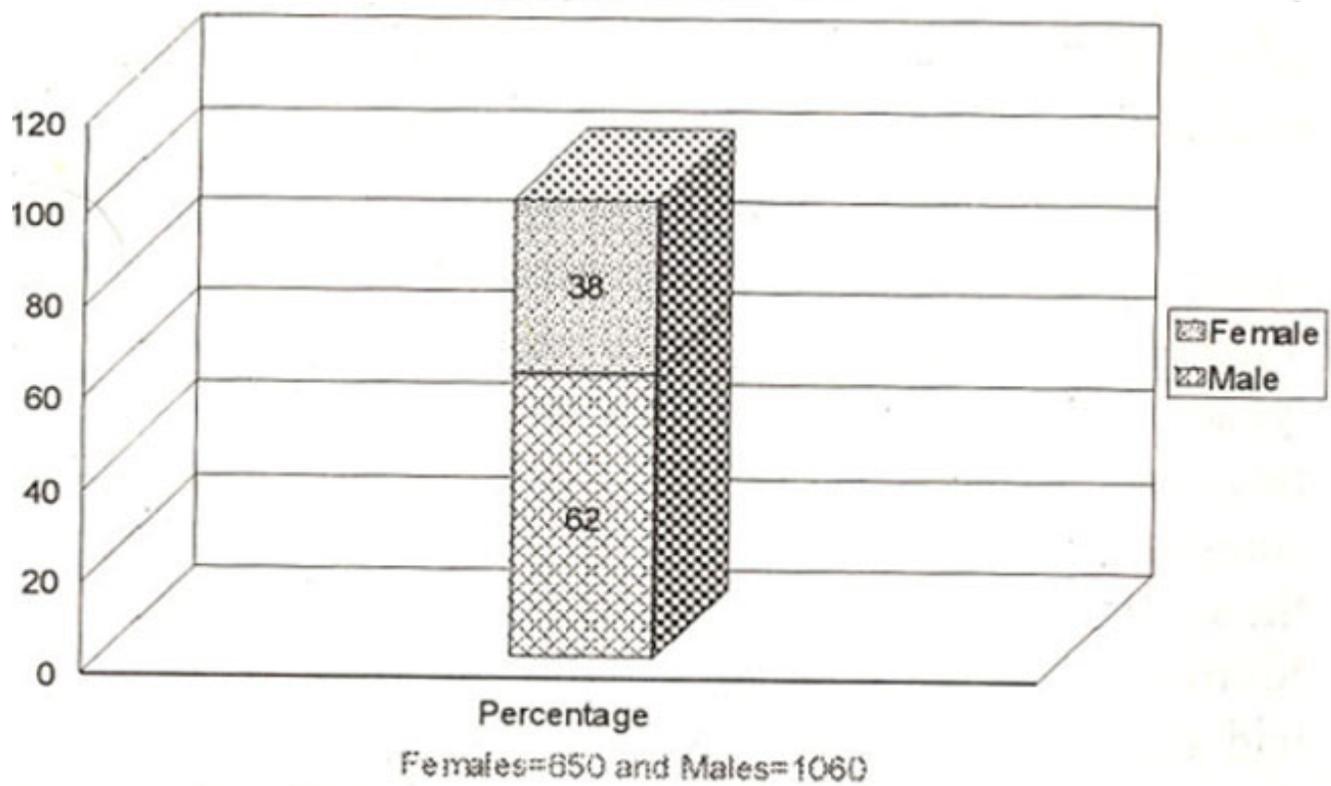


Figure 2. Sex distribution of anti HCV positive cases.  
Total positive cases = 1710

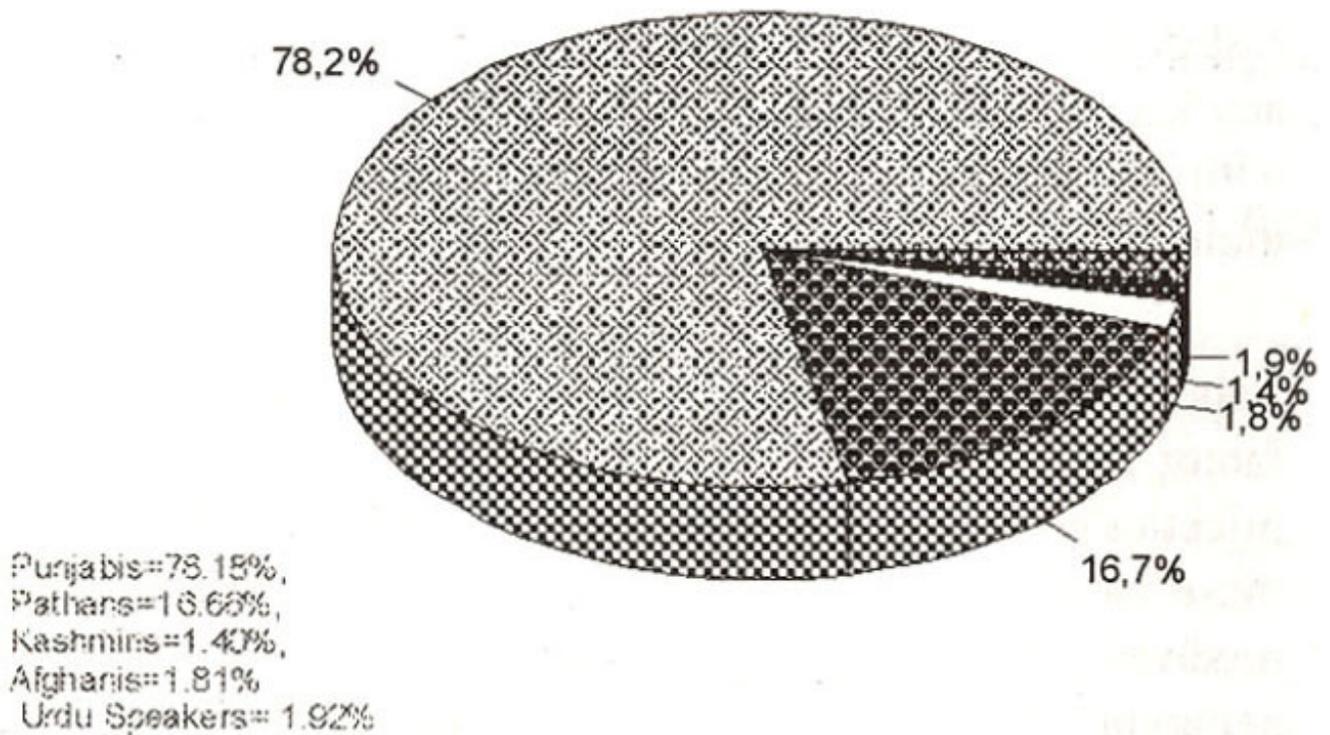


Figure 3. Ethnic distribution of anti HCV positive cases.  
 Total positive cases = 1710

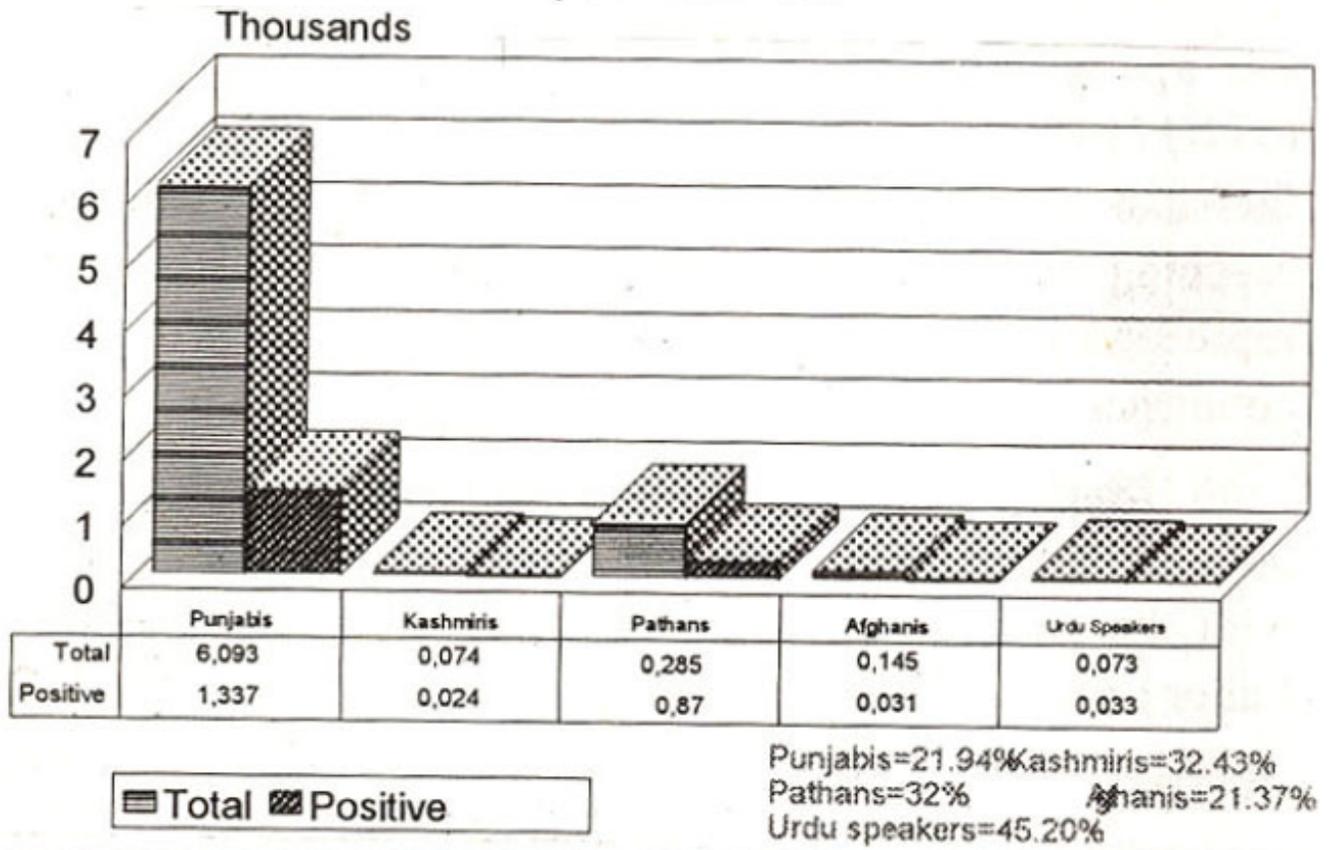


Figure 4. Percentages of anti HCV positivity in various ethnic groups.

## Discussion

As has been shown in the Figure 1, the majority of the cases were of the age between 30-60 years, which is the most productive time of life. The disease thus affects the individuals mostly at the time when the community is dependent upon their vigor and enterprise. The deleterious effects are not only in the form of bodily ill health and reduced efficiency but also these are in the form of the expenditure incurred on the tests for monitoring the progression of the disease and treatment. These all have their own adverse financial, emotional and social implications. Moreover the individual, at this age is more liable to transmit the infection to others.

In one study carried out on 145 HCV infected cases in Karachi, the mean age of those presenting with chronic active hepatitis was  $(42.6 \pm 12.7)$  which was younger as compared to  $(51.2 \pm 9.2)$  in those presenting with cirrhosis<sup>8</sup>.

In our study a selected group of the patients was analyzed to evaluate the possible risk factors. The finding in this age group of less than 20 years of age, (9 cases <10 years and 56 cases in the age group of 11-20 years) was interesting when the possible risk factors in them were sought. All the 9 cases with age less than 10 years were those who had been on multiple blood transfusions. Similarly, 30 out of 56 cases in the age group of 11-20 years had also been dependent upon multiple transfusions, mainly due to their underlying bleeding disorder. Four cases out of remaining 26 in this group had either mother or father with hepatitis C, whereas no risk factor could be evaluated in the rest of the cases. Therefore, the percentage of those without any known risk factor was 33.8% (22/65) and if four cases with history of HCV infection in their parents, are also included in this group, then the percentage was 40%(26/65).

These results are similar to a study conducted at Lahore on 144 patients, for the determination of the risk factor in which there was a history of multiple parenteral injections including needle stick injuries in 72 (50%) of these cases. About one quarter of them (35 cases 24.3%) received blood transfusion in the past. There was no apparent risk factor associated with 37(25.7%) cases. These were labeled as endemic cases<sup>9</sup>.

The decrease in percentage to 8.8% (151/1710) in the age group of 60-70 years in our study and 6.6% (114/1710) in those with age >70 years might be due to the fact that majority of the people in our country die before reaching the age beyond 70 years. Therefore, this age group represents a fraction of our population, unlike the developed countries.

Sixty two percent patients were males and 38% were females as shown in Figure 2. These findings are consistent with the studies conducted by other workers. A study at Lahore revealed a ratio of more than two to one (98 males and 46 females)<sup>9</sup>. In a previous study at Rawalpindi, males were 2.3 times more frequent as compared with females<sup>10</sup>.

The findings of lack of evidence for male preponderance of HCV infection by Zuberi<sup>11</sup> have not been confirmed by other workers. All other workers have observed much higher prevalence of HCV related condition in case of males<sup>8,9</sup>. Male predominance might be due to more number of males reporting for their medical consultation and due to more dynamic and active role of the male in our set up. One may not be confident to predict, whether the male predominance is due to predilection of the gender for the disease process or otherwise, unless a basic serosurvey is carried out.

The role of sexual transmission in the prevalence of the disease among the spouses of those who are infected with HCV has been studied in different places. In the LsMaIe studies carried out in Asia, it has been suggested that the spouses of the HCV infected persons are at a significantly higher risk of HCV infection than other members of household<sup>12</sup>, but the transmission was inefficient. This aspect also needs to be investigated in our setup.

During the period of our study, 78.2% of the total anti HCV positive patients under study were Punjabis, 16.6% Pathans, 1.4% Kashmiris, 1.8% Afghan refugees and 1.9% Urdu-speaking as has been

shown in figure 3. The findings were similar to our previous study in which 70.6% patients were Punjabis, 23.1% were Pathans, 3.7% were Urdu-speaking and 2.5% were Afghans living as refugees in Pakistan<sup>10</sup>. This shows the ethnicity of those depending upon our institutes for their investigations. We probed into the details of ethnicity regarding anti HCV positive cases, in a trial to understand the percentage of positivity in different ethnic groups, by calculating the positive cases from the total no of patients tested in the respective groups. Out of total 1710 positive cases, 1337 were Punjabis. These 1337 patients were positive out of total 6093 Punjabi patients tested. This way the percentage of positivity in Punjabis comes to 21.9%, in Kashmiris, in the similar way, it is 32.4% (24/74), in Pathans 32% (87/285) in Afghans 21.3% (31/145) and in Urdu-speaking patients it is 45.2% (33/73) as indicated in Figure 4. These figures might provide a baseline for further studies in the future. These findings were not significantly different from those in a preliminary study in 1995 done at PMRC Karachi, which showed that HCV infection was more in Urdu-speaking Urban population as compared with Sindhis. Balochi speaking rural population where HBV and delta virus infections were common<sup>11</sup>. The difference is obviously due to the different ethnic origin of the population under study. Most probably the HCV was acquired in Karachi at an earlier age or is diagnosed at a younger age.

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