

Frequency distribution of Hepatitis C virus in different geographical regions of Punjab: Retrospective study from a tertiary care centre in North India

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Abstract

Background and Aim: There is a scarcity of published information on epidemiology of Hepatitis C infection in India particularly in Punjab. We conducted a retrospective study to assess the frequency distribution, including demographic and geographical data of patients with Hepatitis C in different regions of Punjab. **Materials and Methods:** We retrospectively collected the clinical, demographic and geographical data of 516 patients with Hepatitis C admitted in our hospital from January 2010 to December 2010. Punjabi patients with positive anti-Hepatitis C virus (HCV)-enzyme linked immune sorbent assay test for the detection of anti-HCV antibodies were included. **Results:** There was predominantly rural distribution (67.3%) of patients with maximum cases from Ludhiana district (30.04%). Highest frequency of Hepatitis C infection was found in the middle aged (41-60 years) patients with male predominance. High proportions (44.8%) of the patients included in our study were incidentally detected with Hepatitis C infection on routine screening. Various associations of HCV infection with other diseases were also identified. **Conclusions:** Hepatitis C is an emerging disease in Punjab with a sizeable cluster of HCV infected asymptomatic persons who can act as a pool for its continuous transmission. The study helps us to predict the probable risk factors for Hepatitis C infection in Punjab. The need of the hour is to increase awareness about HCV among the public and practicing physicians.

Key words: Epidemiology, Hepatitis C, India, Punjab

INTRODUCTION

Hepatitis C is a RNA virus that belongs to the Flaviviridae family and is a main cause of acute hepatitis after a blood transfusion. This virus is neither related to hepatitis A nor to hepatitis B (non-A, non-B hepatitis). Global prevalence of Hepatitis C virus (HCV) infection has been

estimated around 2%. Approximately, 170 million people are chronically infected with the HCV and 3-4 million people have a new infection with this virus each year.^[1] This virus is one of the most frequent causes of chronic blood borne infection in developed countries like the USA. The impact of this infection is also emerging in India due to flaws in India's blood-banking system and non-execution of international standards concerning blood transfusion, reuse of unsterilized needles, syringes and surgical instruments by quacks and intravenous drug abuse.^[2] Punjab is a state in the northwest of the Republic of India with high occurrence of risk factors for HCV infection.^[3] There is paucity of published data on epidemiology of Hepatitis C infection in India, particularly in Punjab. We retrospectively investigated the frequency distribution of HCV in different regions of Punjab and

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studied demographic and geographical data of Punjabi patients with Hepatitis C.

MATERIALS AND METHODS

This retrospective hospital record-based study was carried out in a tertiary care teaching hospital in Ludhiana (Punjab), India. Demographic and geographical data of the Hepatitis C patients admitted to our hospital was collected for a period of 1 year; from January 2010 to December 2010 and was analyzed. Patients of all age groups with positive anti-HCV-enzyme linked immune sorbent assay (ELISA) test for the detection of anti-HCV antibodies by using third-generation ELISA kits were included. Those patients who were admitted with complaints other than known Hepatitis C infection and were incidentally detected with Hepatitis C on routine testing were also included. Patients with positive anti-HCV antibodies but residing outside Punjab were excluded.

Statistical analysis

The data was evaluated using Microsoft Office Excel worksheet and percentage and proportions for every variable was calculated. $P \leq 0.05$ was considered to be significant.

RESULTS

In the present study, out of total 516 patients, 376 (72.87%) were males and 140 (27.13%) were females [Table 1]. The highest prevalence (49.81%) of Hepatitis C infection was found within the age group 41-60 years, followed by 30.04% within the age group 21-40 years, with the lowest prevalence was observed within the age group of years >80 (0.39%) and ≤ 20 (1.74%) [Table 2]. There was a predominant rural distribution (67.25%) of subjects as compared to urban (32.75%) [Table 3]. Among the districts of Punjab, the highest frequency distribution of subjects was found in Ludhiana (30.04%) followed by Moga (17.84%), with the lowest number observed from Taran Taran and Ropar (0.39% each) [Table 4]. Out of total 516 patients, 290 (56.2%) had a known Hepatitis C infection before admission and rest of the patients (44.8%) were incidentally detected on routine screening. Most important diagnosis (other than known Hepatitis C infection) with which patients were admitted included chronic renal disease, drug abuse, infection, trauma, anemia, alcoholic liver disease, chronic liver disease, diabetes mellitus, history of caesarean section and other surgical interventions, concomitant Hepatitis B and HIV infections.

DISCUSSION

In the present retrospective study, we studied the demographic and geographical data of patients from

Table 1: Sex distribution of subjects

Sex	No.	%
Male	376	72.87
Female	140	27.13
P value	0.00001	

Table 2: Age distribution of subjects

Age (years)	No.	%
Upto 20	9	1.74
21-40	155	30.04
41-60	257	49.81
61-80	93	18.02
>80	2	0.39
Mean	47.78	
SD	14.38	

Table 3: Locality distribution of subjects

Locality	No.	%
Rural	347	67.25
Urban	169	32.75
P value	0.00001	

Table 4: Distribution of subjects according to districts

District	No.	%
Amritsar	6	1.16
Barnala	20	3.88
Bathinda	20	3.88
Faridkot	8	1.55
Fatehgarh Sahib	5	0.97
Firozpur	36	6.98
Gurdaspur	7	1.36
Hoshiarpur	9	1.74
Jalandhar	14	2.71
Kapurthala	14	2.71
Ludhiana	155	30.04
Mansa	23	4.46
Moga	92	17.83
Muktsar	23	4.46
Nawanshahr	14	2.71
Patiala	6	1.16
Ropar	2	0.39
Sangrur	60	11.63
Tarn Taran	2	0.39
Total	516	100.00

Punjab with Hepatitis C admitted in our hospital in the year 2010. This study gave an overview of the frequency distribution of HCV in different regions of Punjab. HIV, hepatitis B, and Hepatitis C are transmitted parenterally, vertically, or through high-risk sexual behaviors and are main public health problems in developing countries like India. These infections can lead to acute and chronic life-threatening diseases.^[4] In present study, Hepatitis C infection was found to be more than twice prevalent in males as compared to females. This may be explained from the fact that males are more prone to harbor the risk factors for this infection like drug abuse and

unprotected sex. In a population based study done in Mullanpur (district Ludhiana), overall prevalence of HCV was found to be similar among males and females.^[5] However, in another study done in Faridkot district of Punjab, prevalence of active HCV infection was high (73%) in males as compared to females (26%).^[6] In our study, the prevalence of HCV infection was highest in age group of 41-60 years followed by 21-40 years, which is in agreement in a population based study done in Mullanpur (district Ludhiana).^[5] This may be due to the long asymptomatic period of Hepatitis C infection with symptoms appearing after a long latent period. Moreover, the above age groups are most likely to indulge in risky behavior and practices such as unprotected sex and substance abuse. Predominant rural distribution of subjects is most likely due to lack of proper health care facilities in rural areas, reuse of unsterilized instruments and syringes by quacks, drug abuse and lack of awareness about the prevention and the treatment of this disease among rural people. In a recent questionnaire based study it was concluded that, in spite of having awareness about parenteral route of transmission of HCV infection, a substantial proportion of family physicians in the Punjab state persist to reuse needles and syringes. Knowledge about the virology, clinical symptoms, diagnostic tests and management approaches are poor among a considerable section of family physicians in Punjab.^[7] Therefore, control approaches, including a strict screening of all blood donors, public awareness programs, and institution of sufficient public health measures must be implemented without delay. In this study, highest percentage distribution of subjects was found from Ludhiana followed by Moga districts. This may be partially due to the fact that the hospital in which study was done is located in Ludhiana city and more patients from these districts are likely to admit in this hospital due to relative proximity of these areas to the hospital. In the study done by Sood *et al.*, prevalence rate of HCV infection in Mullanpur (district Ludhiana) was also found to be the highest (5.2%) as compared to other areas in India and possibly in South Asia.^[5] Since high proportion (44.8%) of patients included in our study were incidentally detected on routine screening, this implies that there may be a large reservoir of Hepatitis C carriers and routine blood screening for Hepatitis C infection should be mandatorily carried out in all hospitals. On a broad overview of the list of most important diagnosis (other than known Hepatitis C infection) of the admitted patients implied an association of Hepatitis C infection with alcohol and drug abuse, dialysis (chronic renal disease), diabetes, hepatitis

B and HIV infections, which has also been documented in the earlier published study.^[5]

To summarize, our study is the first study depicting the frequency distribution of Hepatitis C infection in different districts of Punjab. We also found predominantly rural distribution of subjects and potentially large reservoir of asymptomatic subjects harboring Hepatitis C infection. Above findings have also not been documented earlier in any of the studies. We feel that our study has highlighted this vital public health issue and will definitely provide a base to carry out larger multicenter studies in Punjab.

To conclude our study shows that Hepatitis C is an emerging disease in rural Punjab whose long-lasting implications will be felt in the years to come. There is a considerable group of HCV infected asymptomatic persons who can act as a reservoir for its continuous transmission. Awareness about HCV is needed to be increased among the public and practicing physicians.

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