

## Frequency distribution of Hepatitis C virus in different geographical regions of Western Punjab: Retrospective study from a tertiary care center in North-West India

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### Original Research Article

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**Abstract:** The epidemiological data of Hepatitis C infection in India particularly in Punjab is scarce. We conducted a retrospective study to assess the frequency distribution, including demographic and geographical data of patients with Hepatitis C in different regions of South-West Punjab (Malwa Region). We retrospectively collected the clinical, demographic and geographical data of 203 patients with Hepatitis C admitted in our hospital from January 2015 to December 2016. Patients with positive anti-Hepatitis C virus (HCV)-enzyme linked immune sorbent assay test for the detection of anti-HCV antibodies were included. 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 (61.08%) 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. 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.

**Keywords:** Epidemiology, Hepatitis C, India, Punjab.

### INTRODUCTION

Hepatitis C virus (HCV) is one of the major globally cause of death and morbidity[1] and recent estimates showed an increase in its sero-prevalence over the last decade to 2.8%, corresponding to > 185 million infections worldwide[2]. Chronic HCV infection is often associated with the development of liver cirrhosis, hepato cellular cancer, liver failure, and death [3]. It has been estimated that while the incidence of HCV infection seems to decrease in the developed world, mortality secondary related to HCV infection will continue to increase over the next 20 years [4].

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 [5]. Punjab is a state in the northwest of the Republic of India with high occurrence of risk factors for HCV infection [6]. 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 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 Bathinda (Punjab), India. Demographic and geographical data of the Hepatitis C patients admitted to our hospital was collected for a period of 2 years; from January 2015 to December 2016 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.

### RESULTS

In the present study, out of total 213 patients, 10 were excluded as being residents of outside

states. Of the total 203 patients included, 141 (69.46%) were males and 62 (30.52%) were females [Table 1]. The highest prevalence of Hepatitis C infection was found within the age group 41-60 years (40.88%), followed by 34.97% within the age group 21-40 years, with the lowest prevalence was observed within the age group of years >80 (0.49%) and ≤20 (0.98%) [Table 2]. There was a predominant rural distribution (85.22%) of subjects as compared to urban (14.78%) [Table 3]

Among the districts of Punjab, the highest frequency distribution of subjects was found in Bathinda (66.00%) followed by Mansa (11.82%), with the lowest number observed from Ferozpur (2.46%) [Table 4].

Out of total 203 patients, 79 (38.91%) had a known Hepatitis C infection before admission and rest of the patients 124 (61.08%) 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, concomitant Hepatitis B and HIV infections, alcoholic liver disease, chronic liver disease, diabetes mellitus, history of caesarean section and other surgical interventions.

**Table-1: Sex distribution of subjects**

SEX	NO.	%
MALE	141	69.46
FEMALE	62	30.52

**Table-2: Age distribution of subjects**

AGE (In years)	No.	%
Upto 20	2	0.98
21-40	71	34.97
41- 60	83	40.89
61- 80	46	22.67
>80	1	0.49
Mean	40.6	100

**Table-3: Locality distribution of subjects**

Locality	No.	%
Rural	173	85.22
Urban	30	14.78

**Table-4: Distribution of subjects according to districts**

DISTRICT	No.	%
Bathinda	134	66
Mukhtasar	7	3.44
Fazilka	3	1.49
Mansa	24	11.82
Barnala	7	3.45
Sangrur	5	2.46
Moga	12	5.91
Faridkot	6	2.96
Ferozpour	5	2.47
Total	203	100

## DISCUSSION

Hepatitis C virus (HCV) infection is one of the main global health burdens [4]. This study represents a comprehensive effort to present in a systematic manner the actual situation of the epidemiology of HCV infection. In the present retrospective study, we studied the demographic and geographical data of patients from western Punjab with hepatitis C admitted in our hospital over a two year period, between January 2015 upto December 2016.

Hepatitis C can be transmitted parenterally, vertically, or through high-risk sexual behaviors and has emerged as main public health problem in developing countries like India. 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 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) [7]. 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. 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 Bathinda district. This may be partially due to the fact that the hospital in which study was done is located in Bathinda district and more patients from these nearby districts are likely to admit in this hospital due to relative proximity of these areas to the hospital.

To summarize, our study is one of the first study depicting the frequency distribution of Hepatitis C infection in different districts of western Punjab. We also found predominantly rural distribution of subjects and potentially large reservoir of asymptomatic subjects harboring Hepatitis C infection who could act as a reservoir of continuous transmission. So steps in early detection and management are need of the hour.

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