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**Original Research Article**

# Prevalence of hepatitis B and C among patients admitted in respiratory medicine ward of a tertiary care hospital in Mullana, Ambala, Haryana, India

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## ABSTRACT

**Background:** Viral Hepatitis B and C have become a major public health problem. Hepatitis B affects approximately 30% of world population or about 2 billion people have serological evidence of either current or past infection. Hepatitis C virus infects approximately 3% of world population placing about 170 million people at risk of liver disease. In India, HBsAg prevalence rates among general population ranges from 0.1% to 11.7%, being 2% to 8% in most studies and seroprevalence for Hepatitis C ranges from 0.1% to 8% among general population.
**Methods:** The study was conducted in the respiratory medicine Ward, MMIMSR in the month of August 2016. 200 patients were taken up for the study after clinical examination, necessary investigation and proper consent. Patients were tested for HBsAg antigen and HCV Tridot. Patients were put through a carefully designed questionnaire to look for possible cause of infection. Patients who came out to be positive for either Hepatitis B or C were counselled about further investigations and treatment options.
**Results:** The prevalence rate for Hepatitis B came out to be 9% and for Hepatitis C was 5.5%. Hepatitis has become a major public health issue in India particularly in the rural areas. High prevalence rates among patients with respiratory diseases can be attributed to unsafe therapeutic injections and use of shared needles.
**Conclusions:** There is a need to carry out larger studies to better elucidate the epidemiology of Hepatitis B and C and to identify high prevalence areas and simultaneously focus on improving public health measures to prevent disease transmission and decrease the burden of disease.

**Keywords:** Hepatitis, Prevalence, Unsafe therapeutic injections

## INTRODUCTION

Viral hepatitis B and C have become a major public health problem. Hepatitis B affects approximately 30% of world population or about 2 billion people have serological evidence of either current or past infection, hepatitis C virus infects approximately 3% of world population placing about 170 million people at risk of developing liver disease.[1,2] In India, HbsAg prevalence rate among general population range from 0.1% to 11.7%, being between 2-8% in most studies and HbsAg prevalence rate among blood donors range between 1-4.7%.[3] In India, limited epidemiological data is available on Hepatitis C. The seroprevalence ranges from 0.1-8% approximately among general population and among blood donors varies from 0.48% in vellore to 1.85% in new delhi.[4]

### *Transmission and risk factors*[5]

HBV and HCV is found in blood and blood-derived body fluids of infected person. Transmission results by either

percutaneous or mucosal exposure to blood or other infectious body fluids.

***Possible risk factors***

- IV drug use/shared needles
- Occupational exposure
- Multiple sex partners
- Dialysis
- Use of unsterlised syringes and needles
- Tattoo/ Piercing
- Organ/tissue transplant
- Invasive surgical/dental/ocular procedure.

Objectives of this were to study the prevalence of hepatitis B and C among patients admitted in respiratory medicine ward and to find a possible cause of infection.

## METHODS

The study was conducted in Respiratory medicine, MMIMSR. Patients fulfilling the inclusion and exclusion criteria were taken up for the study.

All patients after clinical examination and necessary investigations were considered for the study.

***Inclusion criteria***

- All patients admitted in Respiratory medicine ward.

***Exclusion criteria***

- All patients having previous history liver disease
- Patients with serious medical condition requiring ICU care.

In this study patients admitted in the respiratory ward were tested for HbsAg antigen and HCV Tridot. Patients were put through a questionnaire to evaluate the possible factors causing the infection. Patients who came out to be positive were counselled accordingly about further investigations and treatment options.

## RESULTS

In our study we evaluated 200 patients mean age was found to be 55 years, with 69% being male and 31% females. Most of our patients were living in rural areas and were illiterate (Table 1).

COPD was found to be the most common diagnosis followed by Bronchogenic Carcinoma and Old PTB with Bronchiectasis (Figure 1). In our study, 17 patients came out to be Hepatitis B positive, 10 patients came out to be Hepatitis C positive and 1 patient came out to be positive for both Hepatitis B and C (Figure 2).

**Table 1: Profile of population.**

| Profile | Frequency | Percentage |
|---|---|---|
| **Age** | | |
| ≤ 40 | 34 | 17.0 |
| 41 - 50 | 36 | 18.0 |
| 51 - 60 | 56 | 28.0 |
| 61 - 70 | 59 | 29.5 |
| > 70 | 15 | 7.5 |
| Range | 16 - 80 | |
| Mean±SD | 55.0±14.1 | |
| **Gender** | | |
| Male | 138 | 69.0 |
| Female | 62 | 31.0 |
| **Marital status** | | |
| Married | 189 | 94.5 |
| Single | 11 | 5.5 |
| **Educational status** | | |
| Educated | 24 | 12.0 |
| Uneducated | 176 | 88.0 |

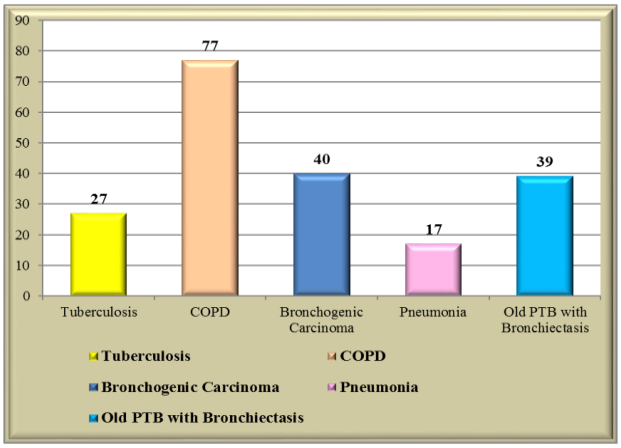


**Figure 1: Distribution of study population according to diagnosis.**

**Table 2: distribution of hepatitis with reference to clinical diagnosis.**

| Diagnosis | Total | Hepatitis B | Hepatitis C | Both |
|---|---|---|---|---|
| Tuberculosis | 27 | 1 | 0 | 0 |
| COPD | 77 | 15 | 7 | 1 |
| Bronchogenic Carcinoma | 40 | 1 | 3 | 0 |
| Pneumonia | 17 | 0 | 0 | 0 |
| Old PTB with Bronchiectasis | 39 | 0 | 0 | 0 |
| **Total** | **200** | **17** | **10** | **1** |

In our study, Among the patients who came out to be positive for hepatitis, COPD was found to be the most comman primary diagnosis (Table 2). In our study, use of unsterilized syringes and needles was found to be a possible source of hepatitis infection (Table 3).

**Table 3: Distribution of possible sources of infection among patients.**

| Source of infection | Total | Hepatitis B | Hepatitis C | Both |
|---|---|---|---|---|
| IV drug use/shared needles | 0 | 0 | 0 | 0 |
| Occupational exposure | 0 | 0 | 0 | 0 |
| Multiple sex partners | 1 | 1 | 0 | 0 |
| Dialysis | 0 | 0 | 0 | 0 |
| Use of unsterilized syringes and needles | 174 | 14 | 5 | 1 |
| Tattoo/Piercing | 9 | 0 | 0 | 0 |
| Organ/tissue transplant | 0 | 0 | 0 | 0 |
| Invasive surgical/dental/ocular procedure | 11 | 2 | 0 | 0 |
| Not known | 5 | 0 | 0 | 0 |

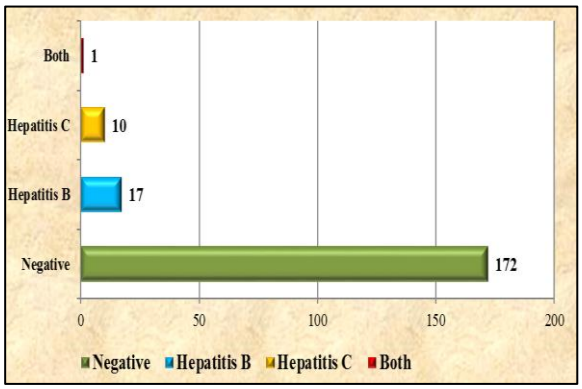


**Figure 2: Distribution of hepatitis in the study group.**

## DISCUSSION

In our study 200 patients admitted in the respiratory medicine ward in our hospital were screened for hepatitis B and C. Prevalence of hepatitis B in our study was found to be 9%. Prevalence of hepatitis B has been reported to range between 0.1% - 11.7%, being between 2-8% in most studies. Chawdhury et al reported the overall carrier rate to 5.3% in their study.[6] Suzuki H et al reported the average carrier rate of HBV to be 4%, placing india in intermediate range for hepatitis B endemicity.[7] Uppal et al reported prevalence of HBV in an urban slum of northern india to be 10.38%.[8] Prevalence of hepatitis C in our study was found to be 5.5% which is on the higher side as compared to other studies like one done in west bengal by Chawdhury et al prevalence of hepatitis C was found to 0.87% and in another study done by Bhardwaj et al in Tamil Nadu during year 2011-2013 prevalence of hepatitis C was found to be 0.68%.[9,10]

Sood et al reported in their study HCV Prevalence in selected geographical area of North India, prevalence of HCV to be 5.2%.[11]

In our study a detailed history was taken from the patients in order to recognize the possible risk factors for hepatitis. Most patients in our study were from rural areas with limited medical facilities, uneducated, chronic smokers. Most of the patients gave history of multiple injections during past years and use of unsterilized syringes and needles by the regional medical practitioners. In 1999 a report was published in the bulletin of WHO by Kane et al, the study suggested that approximately 8-16 million HBV and 2.3-4.7 million HCV infections every year may result from unsafe injections.[12] In the year 1997 Singh et al conducted a study on outbreak of hepatitis in rural population in Haryana state the results linked the outbreak to use of unecessary therapeutic injections.[13]

## CONCLUSION

The prevalence rate for Hepatitis B came out to be 9% and for Hepatitis C 5.5%. Hepatitis has become a major public health issue in India particularly in the rural areas.

High prevalence rates among patients with respiratory diseases can be attributed to unsafe therapeutic injections and use of shared needles.

There is a need to carry out larger studies to better elucidate the epidemiology of Hepatitis B and C and to identify high prevalence areas and simultaneously focus on improving public health measures to prevent disease transmission and decrease the burden of disease.

There is a need to promote strategies for injection safety among both formal and informal practitioners.

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