

## Original Research Article

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# A cross-sectional study to assess the awareness of hepatitis B virus infection in auxiliary staff of a tertiary care hospital

Pooja G. Dhutraj\*, Sujata S. Pol, Harshalkumar N. Mahajan, Swati S. Chavhan

Department of Community Medicine, Lokmanya Tilak Municipal Medical College and General Hospital, Mumbai, Maharashtra, India

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**\*Correspondence:**

Dr. Pooja G. Dhutraj,

E-mail: [pooja.dhutraj@gmail.com](mailto:pooja.dhutraj@gmail.com)

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## ABSTRACT

**Background:** Hepatitis B virus (HBV) is 50-100 times more infectious than HIV and this communicable disease can be prevented by vaccination. Auxiliary staff (class IV workers) of a hospital is one of the most important health workers who work at ground level and are directly or indirectly exposed to blood and body fluids in the course of their work and therefore are at high risk of infection with blood-borne pathogens. They are expected to have an optimum level of awareness toward HBV infection. This study was conducted with the aim to study the awareness about HBV infection, and its transmission, vaccination and protective practices among auxiliary staff.

**Methods:** A cross-sectional descriptive study was carried out in 220 auxiliary staff of a tertiary care hospital in Maharashtra, using a pretested, pre-validated questionnaire.

**Results:** Out of 220 respondents 146 had heard about HBV infection. Out of 146 respondents, 89 were aware about >1 routes of transmission, 135 heard about vaccination and 70 had taken 3 doses of vaccination. Almost all took protective measures at work-place.

**Conclusions:** The results showed that respondents had inadequate awareness about of HBV infection, routes of transmission and vaccination.

**Keywords:** Auxiliary staff, HBV infection, Tertiary care hospital

## INTRODUCTION

Viral hepatitis is a cause for major health care burden in India and is now equated as a threat comparable to the 'big three' communicable diseases- HIV/AIDS, malaria and tuberculosis. Most common cause is infection with one of four viruses, called hepatitis A, B, C, and E. All of these viruses can cause an acute disease with symptoms lasting several weeks including yellowing of the skin and eyes (jaundice), dark urine, extreme fatigue, nausea, vomiting and abdominal pain. It can take several months to a year to regain good health.<sup>1</sup>

Hepatitis B virus is a DNA virus belongs to Hepadnaviridae family.<sup>2</sup> It is a leading cause of chronic hepatitis, cirrhosis, and hepatocellular carcinoma. It can

be transmitted vertically, through sexual or household contact, or by unsafe injections, but chronic infections acquired during infancy or childhood account for a disproportionately large share of worldwide morbidity and mortality. Humans are the only known natural host.<sup>3</sup> The majority of the infections are subclinical, so approximately 80% of all HBV infections are undiagnosed.<sup>4</sup>

Worldwide 2000 million people alive infected with HBV at some time in their lives and 300 million remain infected chronically and become carriers.<sup>5</sup>

In South-East Asian region, there are estimated 80 million hepatitis B virus (HBV) carriers (about 6% of the total population) and in India has been estimated to be over 40

million.<sup>3</sup> World can be divided into three areas on basis of prevalence of chronic HBV infection: High endemicity (>8%), medium endemicity (2-8%) and low endemicity (<2%).<sup>2</sup> India has the intermediate endemicity of hepatitis B, with hepatitis B surface antigen prevalence between 2% and 10% among the population studied.<sup>6</sup>

It has been estimated that 14.4% hospital workers are infected with HBV. Physicians, dentists, nurses, laboratory staff, and chair side assistants are at high-risk of acquiring infection.<sup>3</sup> An exposure that might place at risk for HBV infection through percutaneous injury (e.g., a needle-stick or cut with a sharp object) or contact with mucous membrane (of eyes, mouth, nose, etc.) or non-intact skin (e.g., exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue, or other body fluids that are potentially infectious. HBV infection is a well-recognized occupational risk for an HCW.<sup>7</sup>

A paramedic-educated society is expected to have an optimum level of knowledge, attitude, and performance about and toward diseases transmitted. The study showed that paramedics were not optimally informed of hepatitis and their knowledge was suboptimal. By knowing facts, having proper awareness and attitudes the menace of this disease can be prevented to a great extent.<sup>8</sup>

The present study was conducted with objectives to study the awareness about HBV infection and its routes of transmission, vaccination amongst auxiliary staff; to study the vaccination coverage against HBV infection in auxiliary staff and to study the practices protective carried at workplace.

## METHODS

A cross-sectional study was conducted amongst Auxiliary staff (class IV workers) in a tertiary care hospital, Lokmanya Tilak Municipal Medical College and General Hospital, in Mumbai Maharashtra. The study was conducted from August 2018 to December 2018. This institute is one of the major health care delivery facilities of the Maharashtra State and caters to medical needs of a large population of the state.

The sample size was calculated by considering prevalence of awareness regarding HBV infection in auxiliary staff from a study conducted in Maharashtra, India was 64%.<sup>9</sup> The sample size calculated was 220. Auxiliary staff was divided into 6 strata (sweeper, aaya, laboratory servant, ward-boy, hamal and dresser). Stratified sampling method was used and from each stratum study subjects were selected by simple random sampling method. The study subjects were selected as: those who were willing to participate and those who directly or indirectly had come in contact with patient's blood/body fluid/ excreta etc.

Confidentiality of identity was insured to all the auxiliary staff and a verbal consent was obtained prior to filling up of the questionnaire. The questionnaire was pretested for

validity and reliability. The questionnaire consisted of questions to assess awareness about transmission of hepatitis B infection, vaccination and basic protective practices carried while working. Demographic data including sex and age were asked.

Data was entered in Micro-soft excel sheet 2010. The statistical tools like mean, proportion and standard deviation values were used.

## RESULTS

The average (SD) age of 220 Auxiliary staff was 44.4 ( $\pm 8$ ) years and their age ranged from 22 years to 58 years. More than half 124 (56.3%) were males and 96 (43.6%) were females. Among the Auxiliary staff, 141 (64%) had completed primary education, followed by 40 (18.18%) secondary education, 26 (11.18%) had completed higher secondary education and 13 (5.9%) were illiterate.

Among 220 study subjects, 146 (66.36%) have heard about HBV infection. Out of 146 (66.36%) study subjects who have heard about HBV infection, 93 (63.69%) know that HBV infection is life-long infection and 48 (32.87%) know about one or more complications occur due to HBV infection. Among 146 (66.36%) study subjects who have heard about HBV infection, 89 (60.95%) study subjects know one or more route transmission of HBV infection. Table 1 shows awareness about routes of transmission of HBV infection amongst study subjects. The most common route of transmission they knew was direct contact with blood of HBV infected person followed by needle stick injury.

**Table 1: Awareness about routes of transmission of HBV infection amongst study subjects.**

Different routes of transmission of HBV infection	Know about $\geq 1$ route of transmission
i) Blood	78 (87.64%)
ii) Body fluid/saliva	21 (23.59%)
iii) Needle stick injury	68 (76.40%)
iv) Unprotected sex with HBV infected partners	13 (14.60%)
v) Mother to baby	39 (43.82%)

Percentage in Table 1 is calculated from study subjects who know about [89 (60.95%)] one or more route transmission of HBV infection.

Amongst 146 (66.36%) study subjects who have heard about HBV infection, 135 (92.46%) have heard about Vaccination present against HBV infection. And among 135 study subjects who have heard about vaccination present against HBV infection, 92 (68.1%) knew that HBV infection can be prevented by vaccination. Out of 135 who were aware about vaccination against HBV infection, 117 had taken at least 1 dose of vaccine and 70 had taken 3 doses. Out of 220 auxiliary staff, 88 (40%)

had needle stick injury during their work time. And out of 88 auxiliary staff, 63 had taken tetanus toxoid injection and 7 had taken some post exposure prophylaxis including tetanus toxoid injection. Almost all study

subjects carried basic sanitation practice of hand washing after some procedure related to hospital work and use mask and gloves whenever available.

**Table 2: Awareness about hepatitis B infection in different strata of auxiliary staff.**

Different strata of auxiliary staff (n=220)	Heard about HBV infection	Know ≥1 routes of transmission	Heard about vaccination against HBV infection	Had taken at least 1 dose of vaccine
<b>Sweeper (113)</b>	68	36	65	57
<b>Aaya (40)</b>	30	22	26	22
<b>Ward-boy (36)</b>	25	16	22	18
<b>Laboratory servant (15)</b>	12	8	12	11
<b>Hamal (10)</b>	7	4	7	6
<b>Dresser (6)</b>	4	3	3	3
<b>Total (220)</b>	146	89	135	117

## DISCUSSION

The aim of the present study was to investigate the awareness of HBV infection in auxiliary staff. In present study more than half were male and a study conducted by Mudedla et al to know awareness of HBV infection in health care workers at Telangana in 2018 male and female were approximately same.<sup>10</sup>

In present study, the overall awareness about HBV infection was 66.3%. A study conducted by Pandharbale et al at MGV'S KBH Dental College, Nashik, Maharashtra, India in auxiliary staffs about awareness of HBV infection was 64%. The awareness in both studies almost similar. And also the awareness about different routes of transmission in both studies is almost similar (40% and 44% respectively).<sup>9</sup> In present study, most common route that they knew was through direct contact with blood of HBV infected person.

A study conducted by Pandharbale et al Maharashtra, India in 2018, awareness about vaccination against HBV infection in auxiliary staff was 18% whereas in present study awareness was 61% and 53% were immunized against it at least for one dose and 32% for 3 doses.<sup>9</sup> This difference was might be due to, the study place; tertiary care hospital carried a program of hepatitis B surface antigen checking and immunization in all health workers from mid of 2017 to 2019.

A similar study conducted by Tirupati et al in 2011 among 367 health workers where only 15% study subjects were aware about complications occur due to HBV infection and in present study awareness about complication occur due to HBV infection is nearly same i.e. 21%.<sup>11</sup>

In the survey done to determine the knowledge, attitude, and practice regarding hepatitis B among health workers by Khan et al in Karachi, Pakistan in 2010, 57% had

knowledge about the routes of spread of HBV and in present study was 44%. This difference was might be due to in a study conducted by Khan et al in Karachi medical students as study respondents whereas in our study only class IV works were respondents as part of health workers.<sup>12</sup>

Almost all auxiliary staffs followed basic protective measures of hand washing, use of gloves and mask while working.

## CONCLUSION

Hepatitis B is a major public health problem in India and health workers will continue to be at risk to acquire infection. In the present study awareness about HBV infection is less among auxiliary staffs and immunization against infection is again less. The auxiliary staffs are important part of medical fraternity and work at ground level of this field. Therefore, it is very much important to make them aware about HBV infection and immunize against it. There is an essential need for further education among the auxiliary staffs to improve and update their knowledge of hepatitis B, by conducting well-designed seminars, programs and workshops.

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