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Awareness about hepatitis-B, among the nurses of Shri Maharaja Hari Singh Hospital (SMHS), Srinagar – a tertiary care hospital: a cross sectional study

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ABSTRACT

Background: Health care workers (HCWs) represent high risk population for viral hepatitis infection. This study sought to assess the knowledge of HCWs of Shri Maharaja Hari Singh Hospital regarding hepatitis B infection.

Methods: In this hospital based cross-sectional study, 104 HCWs (nurses) from Shri Maharaja Hari Singh hospital, Srinagar were invited to participate in the study and after taking informed written consent were interviewed using a semi-structured questionnaire.

Results: A total of 104 HCWs responded to the study. Majority of the study subjects had satisfactory knowledge about hepatitis B viral infection. Majority (>80%) of respondents had adequate knowledge about the nature of disease. Regarding transmission and prevention 100% of respondents agreed to the fact that blood transfusion had a role in spread of hepatitis B and that it can be prevented by vaccines.

Conclusions: More than half (about 51.9 percent) of study subjects were not vaccinated for hepatitis B infection despite of being aware about the spread through needle stick injury. Appropriate educational and health promotion programmes should be implemented to increase the level of preventive practices on hepatitis B among the HCWs.

Keywords: Hepatitis-B, Staff nurses, Kashmir, Knowledge

INTRODUCTION

Hepatitis B is an acute systemic infection of liver, caused by hepatitis B virus and transmitted usually by parenteral route. The incubation period varies from 4 weeks to 6 months. It's an acute self-limiting infection which may be either subclinical or symptomatic. In some cases it fails to resolve on its own and thus the affected individual becomes a persistent carrier of the virus. This persistent infection may cause active hepatitis and hepatocellular carcinoma. Hepatitis B virus is transmitted through blood or body fluids, which include wound exudates, semen, vaginal secretions and saliva. Among the body fluids blood

and serum contain the highest concentration of the virus; saliva contains the lowest.² Through parenteral route it can spread by needle sticks, sharing or reusing non sterile needles or syringes, transfusion of blood and blood products, hemodialysis and tattooing.³ HBV carrier mothers can transfer the infection to their babies which appears to be an important factor for the high prevalence of HBV infection in some regions including china and South-East Asia. The majority of children who are born to HBeAG positive become chronically infected. The sexually promiscuous, particularly male homosexuals are at a very high risk of infection with infection with hepatitis B.⁴

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HBV infection is a global problem. 66% of the entire world's population is living in areas where there are high levels of infection. Around 2 billion people worldwide have evidence of past or current HBV infection and 350 million are chronic carriers of the virus, which is harbored in the liver and causes an estimated 780,000 deaths from cirrhosis of liver and hepatocellular carcinoma. 5 Countries can be divided into three categories based on different HBsAg carrier state: high endemicity (>8%), intermediate (2-8%), and low endemicity (<2%).

In India alone there are an estimated 43 to 45 million HBsAg carriers and among them 10 to 12 million are also positive for HBeAg.⁶ HCWs are at increased risk of contracting blood borne pathogens due to their occupational exposure to blood and body fluids. The nursing staff is the most vulnerable group who are frequently victimized by accidents with cutting and piercing objects, since these professions are also the ones who most often handle such material while performing their tasks. Thus their chance of accidental exposure to hepatitis B is high and they are considered as high risk groups.² The present study was conducted to assess the knowledge of HCWs of Shri Maharaja Hari Singh Hospital regarding hepatitis B infection.

METHODS

This questionnaire based cross-sectional study was conducted in Shri Maharaja Hari Singh hospital of Srinagar, an associated hospital of Government Medical College Srinagar, from 01 November-05 December 2018. This hospital provides tertiary health care to a large population of Kashmir province. This study was done on nursing staff of various departments' viz. surgery, medicine, ENT, and dermatology who were chosen by convenient sampling.

A total of 104 study subjects agreed to participate in the study after taking a written consent. The subjects were interviewed using the semi structured study instrument (closed ended questionnaire). Richmond et al self-report questionnaire with some modifications was used. 7 This specifically designed questionnaire has been reported to be acceptable to almost all responders with a Cronbach's alpha coefficient of 0.7 for HBV knowledge. The questionnaire consisted of 40 questions and two main parts (including 14 questions on sociodemographic data which included name, age, sex, occupation, marital status, religion, education, work experience, vaccination status, family history of hepatitis B, knowledge of needle stick injury, and history of needle stick injury, 26 questions on knowledge about HBV. Knowledge section for HBV included the following category focusing on: nature of disease; modes of transmission; ways of preventing HBV infections consisted of 5 statements; treatment of HBV and; vaccination for HBV infection. The collected data was entered in Microsoft excel and analyzed to calculate frequencies and percentages.

RESULTS

A total of 104 nurses from Shri Maharaja Hari Singh Hospital were recruited for the study. The majority (88.4%) of participants were female and the rest (11.6%) were male with the mean age 33.8 years old for women and 40.5 years old for men. More than 48% of responders had history of immunization. 30.8% of nurses reported history of needle stick injury. More than 80% of study subjects were aware about the origin, transmission, and complications associated with hepatitis B infection.

Table 1: Sociodemographic characteristics of study subjects.

| Domain | Number (%) | | |
|----------------------------------|------------|--|--|
| Occupation | | | |
| Junior nurse | 55 (52.8) | | |
| Senior nurse | 45 (43.2) | | |
| Incharge nurse | 4 (3.8) | | |
| Work experience (years) | | | |
| <5 | 41 (39.4) | | |
| 5-10 | 26 (25) | | |
| >10 | 37 (35.5) | | |
| Sex | | | |
| Male | 12 (11.5) | | |
| Female | 92 (88.4) | | |
| Marital status | | | |
| Married | 70 (67.3) | | |
| Unmarried | 34 (32.6) | | |
| Other 0 | | | |
| Education | | | |
| Diploma | 71 (68.2) | | |
| Under graduate | 25 (24) | | |
| Post graduate | 8 (7.7) | | |
| History of vaccination | | | |
| Yes | 50 (48) | | |
| No | 54 (51.9) | | |
| Family history of hepatitis B | | | |
| Present | 0 | | |
| Absent | 100 (96.1) | | |
| Tot known 4 (3.8) | | | |
| Religion | | | |
| Muslim | 101 (97.1) | | |
| Sikh | 3 (2.9) | | |
| History of needle stick injury | | | |
| Yes | 32 (30.7) | | |
| No | 71 (68.2) | | |
| Not known | 1 (0.96) | | |
| Knowledge of needle stick injury | | | |
| Yes | 101 (97.1) | | |
| No | 3 (2.8) | | |

Regarding transmission, more than 90% of study subjects were aware of modes of transmission of disease and among them majority (99%) contributed the spread of disease to

unscreened blood followed by needle stick injury (98%). Around 75% of study subjects knew about mother to child transmission of hepatitis B. Regarding prevention, 100% of study subjects said that the disease is prevented by vaccination. Around 92% of study subjects believed that transmission to fetus can be prevented by vaccinating the

mother. More than 75% of the subjects agreed over the fact that the disease can be prevented by hand washing, regular diet, exercise and barrier contraceptive method (condom). 75% of study subjects were aware of any of the pharmaceutical treatment available for hepatitis B virus infection.

Table 2: Responses to hepatitis B knowledge items.

| Domain | Statement | Correct answers among study subjects |
|-------------------|--|--------------------------------------|
| Nature of disease | Hepatitis B is a viral disease | 90 (86.5) |
| | Hepatitis B is a contagious disease | 92 (88.4) |
| | It leads to liver cirrhosis | 98 (94.2) |
| | It is associated with increased risk of cancer | 85 (81.7) |
| | Once you've had hepatitis B, you cannot catch it again because you are immune | 23 (22.1) |
| | Hepatitis B can spread through close personal contact such as kissing and talking | 94 (90.3) |
| | It can spread through sharing injecting equipment like needles and operation tools | 102 (98) |
| | It can be transferred from mother to foetus | 80 (76.9) |
| | It can spread by mosquitoes | 44 (42.3) |
| Transmission | It is spread through blood to blood contact | 103 (99) |
| Transmission | Having a medical or dental procedure increases a person's chances of contracting hepatitis B | 101 (97) |
| | It is spread through air in an enclosed environment | 85 (81.7) |
| | Sexual transmission is a common way of hepatitis B spread | 73 (70.1) |
| | Some people with hepatitis B were infected by unsterile tattooing | 96 (92.3) |
| | Some people with hepatitis B were infected through blood transfusion | 104 (100) |
| | It can be transmitted by sharing dishes | 84 (80.7) |
| Prevention | Hepatitis B can be prevented by vaccine | 104 (100) |
| | It can be prevented by regular exercise | 82 (78.8) |
| | It can be prevented by regular diet | 53 (50.9) |
| | It can be prevented by hand washing | 80 (76.9) |
| | It can be prevented by condom | 87 (83.6) |
| Treatment | There is a pharmaceutical treatment available for hepatitis B | 79 (75.9) |
| | Special diet is recommended for hepatitis B patients | 65 (62.5) |
| Vaccine | Hepatitis B vaccine causes immunity | 99 (95.1) |
| | Pregnant woman vaccination can prevent foetal infection | 96 (92.3) |
| | Hepatitis B vaccine is given as two shots | 77 (74) |

DISCUSSION

The study was conducted to evaluate knowledge and preventive practice towards hepatitis B virus among the nurses in Shri Maharaja Hari Singh hospital, Srinagar. The results of conducted study showed knowledge which was satisfactory but also inadequate regarding preventive measures towards hepatitis B. These results related to transmissions of hepatitis B were somewhat similar to the findings from studies conducted in some public and private hospitals of Dhaka city Bangladesh where majority (67.3%) of the nurses had adequate but unsatisfactory knowledge on hepatitis B. Similar situation was found in Bolan Medical Complex Hospital, Quetta, Pakistan where majority nurses had knowledge which was acceptable about hepatitis B virus infection and its vaccination. 9 On

the contrary unsatisfactory results were found in the study conducted in Quetta Pakistan among healthy population where the subjects had very low knowledge of hepatitis B infection.⁸ And also in Ethiopia a more or less same results that is very poor knowledge and prevention towards hepatitis B was found among medical students. 10 In Nigeria majority portion of subjects had satisfactory knowledge but only a few applied it into their practice. 11 In our study 80 (6.5%) responded that virus is a cause of hepatitis B. A study conducted in Kathmandu, Nepal showed that 92.2 percent had knowledge about the causative agent.¹² Two other studies which were conducted in Bangladesh by Mehrabin et al and in Ahmedabad, India by Singh and Jain had results which showed that 92.7% and 86.7% of study subjects had knowledge about the causative agent respectively.^{8,13} In this study 100 percent of the subjects had knowledge regarding infected blood transfusion being the common mode of transmission for hepatitis B. Three other studies were also found consistent with our study. One of the studies was done in Kathmandu Nepal in which it was found that 97.7 percent nursing students, second study showed that 98% of the nurses in Dhaka city, Bangladesh and in Ahmedabad, India, it was found that 87% of study subjects knew that infected blood transfusion is the common mode of transmission for hepatitis. 12,8,13 Another study which was conducted in Bangladesh by Rahman and Mannan found that 73% of study subjects did not know that blood products are responsible for hepatitis B virus transmission, it is a possibility that the study subjects are mostly females of different communities and do not have adequate education level.14

70% of study subjects in this study had knowledge about other routes of transmission of hepatitis B out of them 70% stated unsafe sex being one, 85.5% had knowledge about vertical transmission from mother to foetus. 98% knew about sharing and reuse of sharp instruments. Similar results were also found in a study conducted in Kathmandu, Nepal where 97.4% stated that infected blood receivers are the highest risk groups. Also in Dhaka, Bangladesh it was reported that 88% had knowledge regarding transmission via unsafe sex, and 86% knew about transmission via needle sharing and tattooing. 12.8

In the present study majority were aware of being at risk of infection by hepatitis B and also had the knowledge about complications associated with it .94% of subjects stated that liver cirrhosis was a very common complication of hepatitis B. Around 81% of subjects stated that liver cancer is another complication associated with hepatitis B. More than 50% of subjects mentioned both of them. These results are more or less similar to studies done among nursing students of Kathmandu, Nepal where majority of study subjects stated liver damage as one of the major complications. 12 Another finding by Mehrabin et al was that 91.7% had knowledge about hepatocellular carcinoma and cirrhosis.8 In regards to vaccination status, only 40 (8.1%) had received vaccination against hepatitis B virus. Similar results were also found in the study conducted in various public and private hospitals of Dhaka city Bangladesh where 59% of subject were vaccinated and also In a study conducted among HCWs in Ibahan, Nigeria 65.7% of subjects reported being vaccinated.^{8,11}

In our study among nurses 50 (1.9%) were not vaccinated. Unsatisfactory vaccination status was also a finding at Haramaya University, Ethiopia. The results of the studies are highly alarming and utmost importance should be given to taking adequate and appropriate measures from concerned government and equally from the society.

Limitations

This study covered the health care workers of only few departments' viz. surgery, medicine, ENT, and

dermatology thus the awareness about hepatitis B virus infection among the health care workers of other departments viz. orthopedics, gynecology, and pediatrics remains unknown. Another drawback of the study is that the relationship between the educational status of the study subjects and their knowledge about hepatitis B infection could not be established.

CONCLUSION

In conclusion, it can be said that the knowledge of the respondents on transmission of hepatitis B was adequate. More than half (about 51.9 percent) of study subjects were not vaccinated for hepatitis B infection despite of being aware about the spread through needle stick injury.

Recommendations

Appropriate educational and health promotion programs should be implemented to increase the level of preventive practices on hepatitis B among the nurses.

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