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Original Research Article

An assessment of knowledge and awareness on hepatitis B and hepatitis C viruses among police trainees attending police training college, Ongole, Prakasam District, Andhra Pradesh, India

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ABSTRACT

Background: HBV and HCV are blood borne viral diseases, and knowledge about modes of transmission and preventive aspects can help in reduce the risk of getting liver diseases and mainly transmitted through transfusion of contaminated blood and blood products. The knowledge regarding HBV and HCV infection studied in many professional groups, but few surveys are available among the police professionals. The study was conducted to assess the knowledge and awareness regarding Hepatitis B and C viruses' transmission among these police trainees, and to find out the awareness regarding symptoms, signs, complications and importance of Hepatitis B vaccine.
Methods: A cross sectional observationalstudywasconductedamongthepolicetraineesattendingdistrictpolicetraining college, Ongole, Prakasam district, Andhra Pradesh. Information about socio demographic characteristics, basic knowledge about hepatitis B and C viruses, its modes of transmission, prevention, symptoms and signs and also complications, Hepatitis B vaccination were also assessed from all these police trainees. The data were collected, tabulated, and statistically analyzed.
Results: Among total police trainees 61.8% belong to upper middle class, 62.4% were degree holders and most of them belonging to Krishna (32.2%) district. About 59% of police trainees aware about hepatitis B virus infection and 67% know about hepatitis C virus infection. 67.2% were listen about availability of hepatitis B vaccination, none of the participants were aware about hepatitis B vaccine zero dose schedule.
Conclusions: Efficient health programme managing departments must take the responsibility for HBV education, transmission, testing, vaccination accessibility and availability.

Keywords: Hepatitis-B virus, Hepatitis-C virus, Hepatitis-B vaccine, Unsafe injections

INTRODUCTION

HBV and HCV are blood borne viral diseases, and knowledge about modes of transmission and preventive aspects can help in reduce the risk of getting liver diseases.[1] HBV and HCV infections are usually asymptomatic in majority of the people and the chronic infection may lead to serious complications such as cirrhosis of the liver and hepatocellular carcinoma.[2] The virus is mainly transmitted through transfusion of contaminated blood and blood products, sexual contacts, intravenous drug users, traditional health practice is also common in the region.[3] The prevalence of HBV infectionis; 10% in South east Asia and 1% in North

Europe and America. According to the World Health Organization, India falls in the intermediate category where approximately 4% and 1% of the general population has a moderate prevalence rate of HBV and HCV respectively. Important factors contributing to HBV and hepatitis C virus (HCV) spread include unsafe use of therapeutic injections, blood transfusion, shaving by barbers, tattooing, mother-to-child transmission and unsafe sexual practices.[4-7] Therapeutic injections are quite common in our community and this pose a consistent threat of transmitting such infections.[8] Overuse of injections and unsafe injection practices causes an estimated 8-16 million cases of hepatitis B.[9] HBV from environmental surfaces contaminated with blood or body fluids onto mucous membranes, cutaneous scratches, abrasions, burns or other lesions. Blood contains the highest HBV titres and is the most important vehicle of transmission in the health care setting. Hepatitis B virus can survive even in small blood drop and a person with wound, abrasion coming into contact with the wound may transmit the disease and very few people are aware about this mode of transmission. HBV is relatively stable in the environment and remains viable for at least 7 days on environmental surfaces at roomtemperature.[10] As per the latest world health organization (WHO) report, dated July 18, 2018: globally, by the end of 2015, an estimated 257 million people were living with HBV and 71 million persons living with HCV infection and approximately 887,000 deaths.[11] In South- East Asia, 100 million people are currently estimated to be living with hepatitis B, and 30 million with hepatitis C. In India, viral hepatitisis now recognized as a serious public health problem. It causes social and economic burden on the affected individual, family, as well as the health system. In India, as per latest estimates, 40 million people are chronically infected with hepatitis B and 6 to 12 million people are chronically infected with hepatitis C.

HBV infection can be protected by 3 doses of vaccination. Further, it can be prevented by educational programs like teaching the population about the risk factors of acquiring the infection and how to avoid them over a period of time[12]. Healthcare planners have put a plan to eliminate HBV from the country by 2030. Patients who lack adequate information about HBV and HCV may not be sufficiently prepared to make decisions that can protect their health, including adhering to prescribed medical treatments. Low knowledge about HBV and HCV may have serious consequences for patients and their families and other contacts. Government of Andhra Pradesh has a separate police training wing under which various police training centres existing all over the state, and there is one police training centre Prakasam district headquarters, Ongole where three months training use to give for constables, excise constables and P&E constables. As a part of their training personality development, yoga, first aid and health related skills are being taught during their training period. The knowledge regarding HBV and HCV infection has been widely studied in many professional groups, but few surveys are available about status of knowledge among the police professionals and so that scientifically planned research studies may be useful in knowing the health issues and finding solutions and making policies for implementation. The study has been planned to conduct to assess the knowledge and awareness regarding Hepatitis B and C viruses transmission among these police trainees, attending police training college and to find out the knowledge regarding symptoms, signs, complications and importance of Hepatitis B vaccine.

METHODS

A cross sectional observational study was conducted among the police trainees attending district police training college, Ongole, Prakasam district, Andhra Pradesh. Principal is the authority of this training college, and supported with Government posted medical officer on regular basis to conduct health check-ups of the trainees and staff. Vijayasree hospitals gastro and liver care centre and Devarakonda Subbaiah memorial educational society together conducted free hepatitis B and C viruses screening camp for these police trainees in May 2016 and knowledge and awareness was assessed for all these police trainees. The participants were well explained about the design and purpose of the study. The participants were given a pretested semi-structured questionnaire in a lecture hall to all on a pre-notified date and time. The questionnaire was designed to get information about socio-demographic characteristics, basic knowledge about hepatitis B and C viruses, its modes of transmission, prevention, symptoms and signs. They were further queried about routes of transmission like sexual intercourse, child birth, blood transfusion, sharing toothbrushes and razor sand reuse. Knowledge regarding Vaccination against Hepatitis B viruses was also assessed from all these police trainees. Information related to Hepatitis B and C viruses complications was also obtained. A written informed consent was obtained from each participant. The data were collected, tabulated, and statistically analyzed using Microsoft Excel and statistical package for the social sciences (SPSS) software, version 22. IBM Chicago. Quantitative data were expressed in numbers and percentages. Association was observed between education and knowledge of police trainees.

RESULTS

All 186 police trainees attending police training college were males only and maximum (63.4%) were within the range of 26-30 years, 20.4% were below 25 years age and 83.9% were from rural areas. Among total police trainees 61.8% belong to upper middle class, 17.2% were middle class and only 2.6% were upper class. The basic qualification for selection of police trainees was 10th class but 62.4% were degree holders, 17.2% were post graduates, 12.4% were B. Tech professionals and only 2.6% were studied up to 10th class (Table 1).

Table 1: Socio-demographic details of police trainees (n=186).

Variables	N	%
Males	186	100
Age groups (years)		
Upto 25	38	20.4
26-30	118	63.4
31-35	28	15
36-40	2	1
>40	1	0.05
Setting		
Urban	30	16.1
Rural	156	83.9
Socioeconomic classification		
Upper class	5	2.6
Upper middle class	115	61.8
Middle class	32	17.2
Lower middle class	20	10.7
Lower class	14	7.5
Education		
10th class	5	2.6
Intermediate	10	5.2
Degree	116	62.4
PG	32	17.2
B. Tech	23	12.36

All these police trainees visited to this college from 9 districts of Andhra Pradesh, most of them belonging to Krishna (32.2%) district, followed by Visakhapatnam (17.2%), Srikakulam (14.5%) and East Godavari (13.5%) districts and very few from Khammam (0.5%) and Nalgonda (0.5%) districts. There were three types of constables about forty three percent were prohibition and exercise (P&E) Constables, 37.6% were general constables and 19.9% were excise constables (Table 2). Among total police trainees 67.2% were listen about availability of Hepatitis B vaccination, even though hepatitis C vaccine not available across the globe, 43.5% aware about availability of hepatitis C vaccination and only 18.8% were aware about the existence of screening tests for hepatitis B and C viruses. Forty nine percent of these police trainees know about availability of free hepatitis B vaccine to children. Providing by Government sector. About 62% were not aware about exact number of doses given to children, 20.4% trainees told 3 doses were required for children. None of the participants were aware about hepatitis B vaccine zero dose schedule (Table 3). About 59% of police trainees aware about hepatitis B virus infection and Only 13.9% know regarding its spread through blood transfusion, 10.7% knew it spreads through shaving razors, 59.6% viewed that it can transmitted by use of same syringes several times, 36.2% had knowledge about spread by use of unsterile tattooing practices and only 8.6% recognized the use of toothbrushes may also transmit hepatitis B infection.

Table 2: Different types of police trainees and posted districts (n=186).

Variables	N	%
Districts		
East Godavari	25	13.5
Guntur	15	8
Khammam	1	0.5
Krishna	60	32.2
Nalgonda	1	0.5
Prakasam	3	1.6
Srikakulam	27	14.5
Visakha Patnam	32	17.2
Vijaya Nagaram	22	11.8
Types of constables		
Constables	70	37.6
Excise constables	37	19.9
P&E constable	79	42.4

Table 3: Awareness on hepatitis related vaccines (n=186).

Variables	N	%
Did you listen about hepatitis B vaccine	125	67.2
How many of you received hepatitis B vaccine dose	75	40.3
Are there any tests available for hepatitis B and C viruses	35	18.8
Did you listen about hepatitis C vaccine	81	43.5
Hepatitis B vaccine is giving in government sector freely to children	91	48.9
Number of doses for children		
1	6	3.2
2	15	8
3	38	20.4
4	15	8
Not aware	115	61.8
Do you heard zero dose hepatitis B vaccine	186	0

About 32% believe that hepatitis can spread by touch with the patients, 27% aware that touch of blood drop with wounded surface ad 13.4% recognize family members can also play role in transmission of disease (Table 4). About 67% know about Hepatitis C virus infection and eighty five percent aware that it not transmits through repeated blood transfusions, 74.1% viewed it can spread by tattooing, 65.6% felt through family members. Eighty seven percent perceived it spread by use of unsterile needle, 85.4% about mother to child transmission, 83.3% said through operative procedures. Sixty seven percent told it can occur through sexual route (67.2%) and standing prolonged period of time in railway stations and bus stands (54.8%) (Table 5).

Table 4: Awareness on hepatitis B virus transmission among police training personnel.

Variables	N	%
Aware about hepatitis B virus	110	59.1
Hepatitis infected through blood transfusions	26	13.9
Spread through contaminated shaving Razors	20	10.7
Repeated use of same syringe	111	59.6
Hepatitis spread through unsterile tattooing practices	67	36.2
Hepatitis spread through use of others tooth brushes	18	8.6
Hepatitis spread with touch	59	31.7
Hepatitis spread through touch of wound with blood drop	50	26.9
Hepatitis spread by family members	26	13.4
Hepatitis spread with drug abuse	14	7.5
Hepatitis spread through unsterile needle	136	73.1
Hepatitis severity increased by alcohol	51	27.4
Hepatitis spread by sexual practices	56	30.1

Table 5: Awareness on hepatitis C virus transmission among police training personnel.

Variables	N	%
Aware about hepatitis C virus	124	66.6
Hepatitis C not infected through Blood transfusions	159	85.4
Hepatitis C spread through unsterile tattooing	138	74.1
Hepatitis C spread by Family members	122	65.6
Hepatitis C spread through unsterile needle	162	87
Hepatitis C virus spread from mother to child	159	85.4
Hepatitis C spread through Operative procedures	155	83.3
Hepatitis C spread in bus stands and railway stations	102	54.8
Hepatitis C spread sexual route	125	67.2

None of the trainee from medical background, 32.8% expressed that hepatitis B virus causes fever, fatigability in 32.2%, cases. 21.5% felt laziness and vomitings may be features and in 22% cases it can cause jaundice. Nearly 20% viewed there will be weight loss, 15.6% told about loss of appetite and 13.4% regarding gas formation. Eleven percent trainees perceived about abdominal pain as a symptom, 7.5% for yellow urine, and 4.9% for icterus on body. Melena and ascites can occur in minimal number of cases (Table 6).

Table 6: Knowledge about hepatitis B virus; signs and symptoms (n=186).

Variables	N	%
Jaundice	41	22
Anorexia	29	15.6
Fever	61	32.8
Laziness	40	21.5
Fatigability	60	32.2
Gas	25	13.4
Pain	20	10.8
Vomiting	40	21.5
Icterus on body	9	4.9
Yellow colour urine	14	7.5
Weight loss	36	19.4
Melena	9	4.8
Ascites	8	4.3

Knowledge on common Hepatitis B and C virus non transmission causes among police trainees was non satisfactory. Seventy percent viewed that both the hepatitis B and C viruses spread by food, 67% told to spread by milk, 51% viewed by eating in same plates. They expressed that even mosquito (51%), talking (43%), and kissing (28%) can also spread both the viruses (Figure 1). Forty nine percent perceived that only Hepatitis B virus causes liver disease. 15% informed that only Hepatitis c virus causes liver disease. Thirty six percent acquainted with a knowledge that both the viruses causes liver disease (Figure 2). Forty six percent of police trainees expressed that only Hepatitis B virus causes liver cancer, 10% told only Hepatitis c virus causes Liver cancer but 44% viewed that both the viruses causes liver cancer (Figure 3).

DISCUSSION

Knowledge and awareness study on hepatitis B and C Virus transmission was conducted for police trainees cadets attending police training college. Exposure to these infections leading to development of health problems to the individual, professionals and public. In our study only 59.1% of police trainees aware about the hepatitis B virus infection, a similar study conducted among medical students found that their awareness level was higher (84.8%) regarding hepatitis B infection. Our study showed lack of medical knowledge among police trainees regarding modes of transmission of hepatitis B virus infection. A study reported by Misra et al in coastal Eastern India and by Taylor et al among Cambodian Americans, in which 78% had heard about the disease earlier.[13,14] In our study, knowledge about transmission through use of contaminated needles (73.1%) and repeated use of same syringes (59.6%) among police trainees was fairly good. Whereas awareness on other modes of spread by sexual contact (30.1%), tattooing (36.2%) and touch of the blood drop with the wound (26.9%) is low. A study conducted by Sannathimmappa, et al revealed the similar findings.[15]

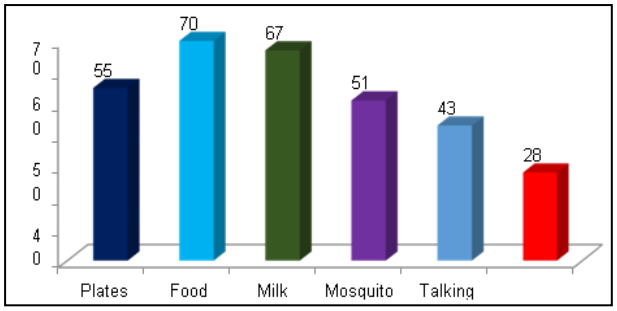

Figure 1: Knowledge on hepatitis B and C virus non transmission causes (n=186).

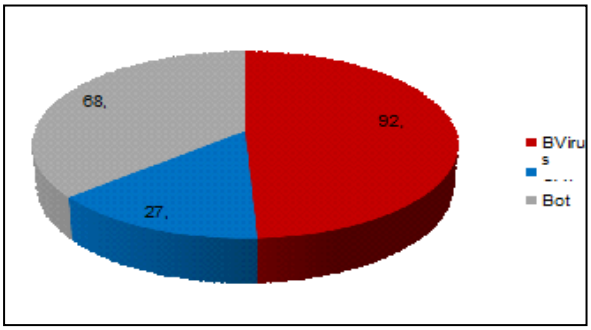

Figure 2: Awareness about hepatitis B and C viruses causing liver disease.

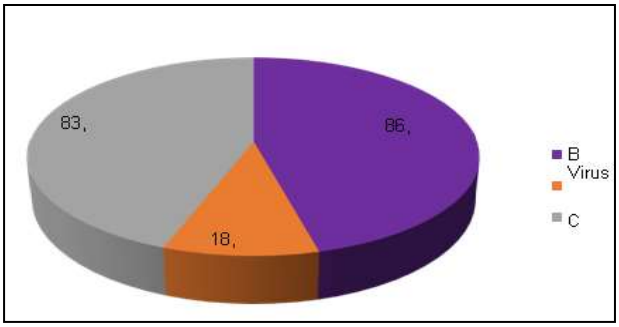

Figure 2: Awareness about hepatitis B and C viruses causing liver cancer.

Very less knowledge on spread of infection by contaminated shaving razors (10.7%), use of others tooth brushes (8.6%), drug abuse (7.5%). It was very astonish to see that some police trainee shave misconceptions about hepatitis B can transmit through touch of one person to other person (31.7%). Similar type of study performed on dental students, majority knew that transmission of HBV results from exposure to contaminated blood (88%), needle stick injury (95%) and unsafe sex (92%).[16] These results agree with the findings of a study from Gujarat, India; where the majority of the medical students had correct knowledge of the mode of transmission.[17] About 67% aware regarding hepatitis C virus infection and 85.4% knew that it transmits through repeated blood transfusions,74.1% viewed it can spread by tattooing. Eighty seven percent told it spread by use of unsterile needle, 85.4% about mother to child transmission. It can occur through sexual route (67.2%) and standing prolonged period of time in railway stations and bus stands (54.8%). Similar type of study by Joukar et al regarding HCV found most of the participants knew that it cannot be spread by personal contact (60.9%), and could be infected through unsterile tattooing (61.7).[18] A good level of knowledge about HCV transmission was also observed among dental students from Brazil (Souza et al. 2016).[19] As per Sultan et al study 50% of the participants believed that HCV infection is not transmitted through sex, while 79 (39.9%) did not know that HCV could be transmitted from a mother to newborn during labour.[20] Our findings supports the results from Chemaitelly et al which suggested that a substantial proportion of the general population in Egypt had poor levels of knowledge in relation to HCV modes of transmission. They found that 61% of participants knew HCV could be transmitted through blood transfusions, 51% knew about transmission through sharing of unclean needles, and 94% were not aware of mother-to-child transmission.[21] Saleh et al study findings were different from our study and it revealed that 22% of participants did not aware about causes HCV infection, 81% mentioned incorrect modes of transmission, and 45% did not know the disease manifestations.[22] The observations in our study were consistent with those of Shalaby et al and the level of knowledge among participants was relatively high, although approximately 25% of the participants did not know sexual contact and body piercing can transmit the infection and believed that hepatitis C vaccine can protect them from disease.[23] The participants might have had a better understanding of HCV infection but not known so much about HBV infection.

Police trainees were also assessed for knowledge regarding clinical symptoms signs and complications regarding hepatitis B virus infection. Among total participants 32.8% told fever is the common symptom followed by fatigability (32.2%), jaundice (22%) and vomitings (21.5%). 4-5% told that it causes icterus on body and ascites as complications due to hepatitis B virus infection. A study conducted in AIIMS Mangalagiri revealed that the clinical features of acute hepatitis B infection were not well understood by majority of the students. Three- fourth of students (72.7%) knew that it can cause jaundice. However, their knowledge about other clinical manifestations such as fever (42.4%), loss of appetite (25.8%), and nausea and vomiting (28.0%) is poor.[15] Participants revealed that even mosquito (51%), talking (43%) and kissing (28%) can also spread both the viruses. Very few studies were conducted about knowledge regarding non transmitting causes of these viruses. A study by Ghanaei et al found that 43.2% of males and 32.5% of females aware about Hepatitis C can be spread through close personal contact such as kissing or talking.[24]

Only 40.3% of police trainees were vaccinated against hepatitis B viral infection and 67. 2% were aware of

availability of HBV vaccine. None of the participants aware about hepatitis B vaccine zero dose schedule. These findings were similar to studies in other parts of Asia.[25,26] This hepatitis B vaccination rate in our study was lower than the vaccination status of 87.8% study done at Muhammad medical college Mirpurkhas 29.3% was reported among medical students of B. J. medical college, 35% was reported in civil hospital of 60 laboratory technicians.[28-30] We observed in our study that 36% police trainees told that both hepatitis B and C viruses causes liver disease and 46% expressed that only Hepatitis B virus causes liver cancer. Awareness about complications and consequences of hepatitis B and C viruses was poor in our study population. Ghouri et al study revealed that only 25% of the participants thought it can result in liver cirrhosis and hepatocellular carcinoma. [30] Another study noticed that Hepatitis B virus can lead to can lead to cirrhosis (79.3%).[18] The students' knowledge about chronic complications associated with hepatitis B infection is also poor as only 49.2% and 25.8% of the students correctly stated that cirrhosis of the liver and liver cancer, respectively, are the common associated complications.[15] In a study done on dental students, 68% students knew hepatitis B can [31] result in cirrhosis and carcinoma. As per Khuwaja et al study, almost half of the students knew about complications. As 78.2% of the subjects recognized chronic hepatitis B as a chronic disease and said that it needed a regular follow ups over a period of time.[32,33] Lack of awareness of the general public about HBV and HCV is the main cause of rapid spread of these infections in developing countries.[34,35] The knowledge about these viruses, transmission and preventive measures were low among police trainees. The findings of our study will be helpful in raising awareness and motivation for vaccination drive among future budding police personnel against HBV infection. Health education initiatives should also be focused toward avoiding infection and seeking immediate medical care in case of accidental exposures to infected blood and other body fluids. An authenticated knowledge about any contagious disease will help decreasing the spread of that disease.

CONCLUSION

Efficient health programme managing departments must take the responsibility for HBV education, transmission, testing, vaccination accessibility and availability. There is a need to conduct further research on patients' and healthcare professionals' behaviour, in order to tackle burden of HBV and HCV viral diseases. Social media and networking measures to disseminate key information on HBV and HCV infection from healthcare authorities should be explored.

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