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KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING PREVENTION OF HEPATITIS-B AMONG HEALTH CARE PROFESSIONALS OF NISHTAR HOSPITAL, MULTAN

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Abstract:

Objective: *To determine the knowledge, attitude and practices of health care professionals regarding transmission and prevention of Hepatitis B virus infection.*

Methods: *This cross-sectional study was done on health care professionals of Nishtar Medical University and Hospital Multan from December 2018 to April 2019. Three hundred thirty-three respondents were selected by non-probability convenient sampling. Their knowledge, attitude and practices were assessed by asking 16, 8 and 8 questions for each respectively. Depending upon their answers their knowledge, attitude and practices were regarded as good if their correct answers were 80%. Chi-square test was used to test the knowledge attitude and practices against their characteristics.*

Results: *Out of 333 study participants, 140 (42%) were House Officers, 103 (30.9%) were Post-graduation Residents, and 90 (27.1%) were Nursing staff. Among House officers, post-graduation residents, nursing staff, good knowledge was seen in 77.1%, 80.6%, 58.9% respectively; positive attitude was seen in 87.1%, 85.4%, 76.7% respectively, good practice was found in 76.4%, 68%, 80% respectively. Only 57.1% were fully vaccinated and 73.9% knew about the availability of post-exposure prophylaxis. Knowledge of the respondents was significantly associated with basic education level, and practices were significantly associated with their department.*

Conclusions: *This study indicates that overall knowledge, attitude, practices are satisfactory, except in the nursing staff who had relatively poor knowledge. Only 57.1% of health care professionals were fully vaccinated against hepatitis B which needs to be improved.*

Key words: *Hepatitis B virus, knowledge, Attitude, practice, health care professionals*

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INTRODUCTION:

Hepatitis B (HB) is caused by hepatitis B virus (HBV) that is Blood borne infection (BBI) which effects liver. Hepatitis B is a contagious infection transmitted by infected blood, blood products, mother to child, unprotected sex, sharing barbar and beauty salon equipment.(1) Globally**,** an estimated 257 million people are infected with hepatitis B (defined as hepatitis B surface antigen Positive). The overall prevalence of hepatitis B in Pakistan is 2.5%(2).Chronic hepatitis B is one of the major causes of liver cirrhosis and hepatocellular carcinoma. On estimation 887 000 deaths were reported in 2015 due to hepatitis B complications (including cirrhosis and hepatocellular carcinoma).

Health care professionals are vulnerable to the acquisition of hepatitis B due to their involvement in blood transfusion, injections and surgical procedures in their practices. Currently, HBV is the leading issue of concern in our society with an under-resourced health care system that lacks the necessary safety measures to prevent the risks of infection, so health care professionals are at high risk of infection with Hepatitis B in health care settings. The transmission route most important in health care settings is needle prick injuries. The average risk of infection with hepatitis B infection after percutaneous exposure to infected blood has been estimated to be 6-30%, compared to 0.3% for human immunodeficiency virus.(3) The prevalence of hepatitis B in health care professionals is relatively more than general population that is 4.1%.(4) It can be prevented by adhering to infection control guidelines such as use of gloves, proper waste disposal, and vaccination.(5) In addition, post-exposure prophylaxis may be used as a means of prevention following accidental exposure to contaminated blood and body fluids.(6)

Knowledge, attitude and practices (KAP) study is designed to assess the key information, behavior and skill towards particular issue in the community. It is a valuable research tool for the design of public health policies. In Pakistan data regarding knowledge and preventive measures against occupational exposure of hepatitis B in health care professionals are scarce despite the high prevalence of infection among general population. The aim of this study is therefore to evaluate the KAP of health care professionals at Nishtar Medical University and Hospital in a city of South Punjab, Pakistan.

MATERIALS AND METHODS:

This cross-sectional descriptive study was carried out between December 2018 and April 2019 among health care professionals of Nishtar medical university and hospital Multan, major tertiary care hospital catering to the needs of the whole Southern Punjab to determine their knowledge, attitude and practice regarding prevention of hepatitis B. We obtained permission from IEC (Institutional ethical committee) of Nishtar Medical University and hospital Multan. After consulting the biostatistician sample size was calculated using modified Cochran formula for finite population since there is no similar study in our settings so following assumptions have been made confidence interval of 95%, 50% proportion and 5% margin of error. Calculated minimum sample size (n) turn out to be **303.** By adding 10% non-response rate we included **333** study participants by non-probability convenient sampling. Data was collected by using pre-formed and pre-tested questionnaire. It contained questions regarding transmission, prevention, treatment, post-exposure prophylaxis and vaccination status.(7)(8)

Inclusion criteria for the study were those health care professionals who are at risk of acquiring Hepatitis B that is house officers, post-graduation residents and nursing staff as they are mainly involved in injections, blood transfusions and surgical procedures. Exclusion criteria for the study were all the health care professionals who are not directly involved in handling of injections blood products and surgical procedures Overall **1430** health care professionals working in Nishtar hospital with 515 house officers, 506 post-graduation residents, and 409 nursing staff.

Following operational definitions were used in this study. For knowledge the scoring range of questions was 16 (maximum) to 0 (Minimum). A cut off level of >12 (80%) was considered good knowledge. For attitude and practices the scoring range of questions was 8 (maximum) to 0 (Minimum). A cut off level of >6 (80%) was considered positive attitude and good practices. Data were entered in using IBM SPSS v.20. Descriptive statistics like frequencies were used to summarize the data. Multivariate analysis was used to examine the relationship between knowledge, attitude and practices and selected characteristics of study participants. Statistical significance was set at P values of less than **0.05.**

RESULTS:

Characteristics of the study Participants

The questionnaire was completed by 333 of the 360 health care professionals (response rate: 92.5%). Among these 333 respondents 140 were House officers, 103 were post-graduation residents and 90 were nursing staff. These health care professionals belong to three different departments 155 (46.5%) from Medicine and Allied, 135 (40.5%) from Surgery and Allied and 43 (12.9%) from obstetrics and Gynae. *Table 1* shows their sociodemographic data

Knowledge level of respondents about Hepatitis B transmission and prevention.

Most of the study participants (>80%) were aware of mode of transmission and availability of vaccine against hepatitis B but nursing staff that are more at risk of needle prick injuries were not aware of availability of post exposure prophylaxis (<60%) as shown in *Table 2*

Knowledge scores for individuals were calculated and summed up to show the total knowledge score. Overall 73.3% have good Knowledge and among sub categories Doctors have relatively better knowledge that is post-graduation residents 80.6% and house officers 77.1% have good knowledge while nursing staff only 58.9% have good knowledge.

Attitude of respondents regarding transmission and prevention of Hepatitis B

The attitude is assessed by asking 8 questions related to Hepatitis B transmission and prevention. It is summarized in *Table 3.* About 98% health care workers were aware of that they are at risk for HBV infection and 86.5% are concerned about hepatitis B. Further 89.8% acknowledged that vaccine against hepatitis B virus is safe and effective and 91.6% agreed that following infection control guidelines will protect them from being infected by Hepatitis B at work.

Table 1: Characteristics of study participants (n=333)

Variables	**N (%)**
Gender	
Male	126 (37.8)
Female	207 (62.2)
Residence	
Rural	80 (24)
Urban	253 (76)
Marital Status	
Single	226 (67.9)
Married	106 (31.8)
Divorced	1 (0.3)
Working as	
House officer	140 (42)
Post-Graduation residents	103 (30.9)
Nursing Staff	90 (27.1)
Department	
Medicine and Allied	155 (46.5)
Surgery and Allied	135 (40.6)
Obstetrics and Gynecology	43 (12.9)

Table 2: Correct responses of different health care groups to hepatitis B Knowledge items

Questions	Nursing staff N (%)	House officers N (%)	Post-graduation residents N (%)	Total N (%)	P Value Chi-square
Heard about HBV and its vaccine?	84(93.3%)	139(99.3%)	100(97.1%)	323 (97%)	0.630
HBV affect any specific age group?	65(72.2%)	101(72.1%)	73(70.9%)	239 (71.8%)	0.970
HBV can affect liver?	88(97.8%)	134(95.7%)	97(94.2%)	319 (95.8%)	0.741
HBV can affect any organ other than liver?	27(30%)	48(34.3%)	35(34%)	110 (33%)	0.000
Is jaundice one of the common symptoms?	69(76.7%)	103(73.6%)	79(76.7%)	251 (75.4%)	0.474
HBV transmitted by contaminated blood and blood products?	78(86.7%)	136(97.1%)	100(97.1%)	314 (94.3%)	0.006
HBV transmitted by un-sterilized needles and surgical instruments?	80(88.9%)	135(96.4%)	102(99%)	317 (95.2%)	0.006
HBV transmitted by unsafe sex?	68(75.6%)	117(83.6%)	78(75.7%)	263 (79%)	0.290
HBV transmitted from mother to child?	72(80%)	125(89.3%)	95(92.2%)	292(87.7%)	0.002
HBV transmitted by contaminated water/food?	34(37.8%)	87(62.1%)	62(60.2%)	183(55%)	0.000
HBV transmitted through skin contact	63(70%)	116(82.9%)	80(77.7%)	259(77.8%)	0.235
Do you think HBV has laboratory test?	89(98.9%)	132(94.3%)	100(97.1%)	321(96.4%)	0.296
Is Hepatitis B curable/ treatable?	71(78.9%)	108(77.1%)	92(89.3%)	271(81.4%)	0.128
Could we prevent HBV transmission?	86(95.6%)	140(100%)	100(97.1%)	326(97.9%)	0.017
Is vaccination available for Hepatitis B?	80(88.9%)	135(96.4%)	100(97.1%)	315(94.6%)	0.060
Do you think that HBV has post exposure prophylaxis?	52(57.8%)	108(77.1%)	86(83.5%)	246(73.9%)	0.000

Table 3: Positive responses of different health care groups to hepatitis B attitude items

Questions	Nursing staff N (%)	House officers N (%)	Post-graduation residents N (%)	Total N (%)	P Value (Chi-square)
I have no concern of being infected with HBV**.**	72 (80%)	125(89.3%)	91(88.3%)	288(86.5%)	0.108
Your job puts you at greater risk of HBV infection	87(96.7%)	140(100%)	100(97.1%)	327(98.2%)	0.161
HBV vaccine is safe and effective.	73(83.1%)	132(94.3%)	94(91.3%)	299(89.8%)	**0.000**
Change of gloves during blood collection is a waste of time.	68(75.6%)	130(92.9%)	89(86.4%)	287(75.6%)	**0.002**
All patients should be tested for HBV before the receive health care**.**	81(90%)	128(91.4%)	90(87.4%)	299(89.8%)	0.768
I do not feel comfortable to take care of people with HBV.	65(72.2%)	77(55%)	70(68%)	212(63.7%)	**0.026**
Following infection control guidelines will protect from HBV.	78(86.7%)	131(93.6%)	96(93.2%)	305(91.6%)	**0.041**
Following needle prick by HBV positive patient, when you need any blood test	36(40%)	60(42.9%)	53(51.5%)	149(44.7%)	0.581

To assess the attitudes towards discrimination and stigma we asked whether they are comfortable in treating Hepatitis B patient about 63.7% health care professionals agreed with the statement. Attitude of nursing staff is not favorable related to vaccine and significant number of nursing staff believe that change of gloves and following infection control guide lines is waste of time (95% confidence interval P=0.002 and P=0.041 respectively) Attitude scores for individuals were calculated and summed up to show the total attitude score. Overall 83.8% have positive attitude and among sub categories doctors have relatively better attitude that is post-graduation residents 85.4% and house officers 87.1% have positive attitude while nursing staff only 76.7% have positive attitude.

Practices of respondents towards prevention of Hepatitis B

The practice is assessed by asking 8 questions related to preventive measures against hepatitis B summarized in *Table 4***.** Of the 333 Participants 291 (87%) participants had screened for hepatitis B, 270 (81.1%) are vaccinated and only 192 (57.7%) were fully vaccinated with recommended three doses. And 70% of nursing staff is vaccinated with 50% of them had received recommended 3 doses of vaccine. About 50% of respondents were never participated in any education program on hepatitis B. Each question was labeled with good or poor practice. Nursing staff have relatively better practices (80%) then doctors that is house officers 76.4 and post-graduation residents 68%.

Association of characteristics of study participants to their knowledge, attitude and practices:

Multivariate analysis of participants characteristics such as gender, residence, marital status working status, department revealed that sex is significantly associated with knowledge scores. Residence and marital status had no association with knowledge attitude and practice scores.

Nursing staff had significantly poor knowledge about Hepatitis B mode of transmission and prevention with 95% confidence interval P=0.001 though their attitude and practice scores are not significantly poor (P=0.094 and P=0.133 respectively). Study participants from medicine and allied have relatively better scores but the results are not significant (knowledge P=0.701 and attitude P=0.094) practice is significantly better in surgery and allied that is with 95% confidence interval (P=0.012) shown in *Table 5***.**

Table 4 : Positive responses of different health care groups to hepatitis B practice items

Questions	**Nursing staff N (%)**	**House officers N (%)**	**Post-graduation residents N (%)**	**Total N(%)**	**P Value (Chi-square)**
Screened for Hepatitis B?	80(88.9%)	126(90%)	85(82.5%)	291(87.4%)	0.357
Vaccinated against Hepatitis B?	63(70%)	123(87.9%)	84(81.6%)	270(81.1%)	**0.001**
How many doses of HBV vaccine did you receive?	46(51.1%)	87(62.1%)	59(57.3%)	192(57.7%)	**0.005**
Do you wear gloves before touching membranes and non-intact skin?	84(93.3%)	115(82.1%)	91(88.3%)	290(87.1%)	0.123
I always report for needle prick injury.	79(87.8%)	89(63.6%)	58(56.3%)	226(67.9%)	**0.000**
Discard sharps into a waste container after treating patient?	86(95.6%)	131(93.6%)	99(96.1%)	316(94.9%)	0.392
Wash hands after contact with patients body fluids?	88(97.8%)	137(97.9%)	101(98.1%)	326(97.9%)	0.551
Have you ever participated in health education program related to Hepatitis B?	53(58.9%)	57(40.7%)	59(57.3%)	169(50.8%)	**0.017**

Table 5: Multivariate analysis of factors associated with Knowledge attitude and practice toward hepatitis B prevention

Variables	**Knowledge**			**Attitude**			**Practice**		
	Good	**Poor**	**P value**	**positive**	**Negative**	**P value**	**Good**	**Poor**	**P Value**
Sex									
Male	105 (83.3%)	21 (16.7%)	**0.001**	109 (86.5%)	17 (13.5%)	0.185	30 (23.8%)	54 (26.1%)	0.301
Female	139 (67.1%)	68 (32.9%)		170 (82.1%)	37 (17.9%)		96 (76.2%)	153 (73.9%)	
Residence									
Rural	60 (75%)	20 (25%)	0.404	69 (86.2%)	11 (13.8%)	0.310	64 (80%)	16 (20%)	0.138
Urban	184 (72.7%)	69 (27.3%)		210 (83%)	43 (17%)		185 (73.1)	68 (26.9%)	
Marital status									
Single	169 (74.8%)	57 (25.2%)	0.529	188 (83.2%)	90 (84.9%)	0.839	164 (72.6%)	62 (27.4%)	0.360
Married	74 (69.8%)	32 (30.2%)		38 (16.8%)	16 (15.1%)		84 (79.2%)	22 (20.8%)	
Department									
Medicine and allied	112 (77.1%)	43 (22.9%)	0.701	137 (88.4%)	18 (11.6%)	0.099	120 (77.4%)	35 (22.6%)	**0.012**
Surgery and allied	102 (75.6%)	33 (24.4%)		107 (79.3%)	28 (20.7%)		108 (80%)	27 (20%)	
Gynea and obstetrics	30 (69.8%)	13 (30.2%)		35 (81.4%)	8 (18.6%)		25 (58.1%)	18 (41.9%)	
Working as									
Nursing staff	53 (58.9%)	37 (41.1%)	**0.001**	69 (76.7%)	21 (38.9%)	0.094	72 (80%)	18 (20%)	0.133
House Officers	108 (77.1%)	32 (22.9%)		122 (87.1%)	18 (12.9%)		107 (76.4%)	33 (23.6%)	
Post-graduation residents	83 (80.6%)	20 (19.4%)		88 (85.4%)	15 (14.6%)		70 (68%)	33 (32%)	

DISCUSSIONS:

Globally hepatitis B constitute an important occupational risk factor to health care professional due to exposure to blood and blood products.(9) This risk increases considerably in developing countries like Pakistan where precautionary measure against infections are suboptimal. KAP studies are conducted to assess the awareness, approach and skill towards particular issue. Various studies conducted yielded different results. In our study overall 73.3% health care professional have adequate knowledge about hepatitis B transmission and prevention, and >95% knew that is spread by contaminated blood and blood products. These findings were in consistent with the study conducted in combined military hospital Lahore medical college and institute of dentistry CMH LMC(10), Northwest Ethiopia(11), Nigeria(12) . Another KAP study conducted in Quetta, Pakistan found knowledge level about hepatitis B in general population to be 24.6% .(13) Possible reason behind this difference is professional training of HCPs about health care issues. In our study only 57% of nursing staff knew about the post exposure prophylaxis. This lack of knowledge may lead to delay in seeking medical attention. More over nursing staff had relatively less knowledge compared to doctors because the level of basic education is different. These results are in line with the study conducted in Sudan(14) and study conducted on nursing students in Namibia(15). In this study, the overall attitude towards hepatitis B prevention among health care professionals is favorable (>80%). More than 80% were concerned about hepatitis B and >85% have acknowledged that vaccine against Hepatitis B is safe and effective. This finding is in line with the study conducted in northwest Ethiopia(7) and in Saudi Arabia(16). About 40% of health care professionals are uncomfortable to provide health care to hepatitis B patient and More than 90% of the respondents acknowledged the importance of Infection control guidelines. These findings are in line with the with study conducted in Saudi Arabia(16).

Regarding practices in our study 57.7 study participants are completely vaccinated 23.4 are partially vaccinated and 18.9 are not vaccinated at all . These findings are in line with the another study conducted in tertiary care hospital, Pakistan (17). A study conducted in primary health care worker of northwest pakistan reported 40% reponders have complteled vaccination that is less (compared to 57.7% in our study).(18) Another study from a tertiary care hospital in Karachi reported 52% complete hepatitis B vaccination(19). Differences in vaccination status of HCWs in tertiary care hospitals and in first level care facilities such as clinics in rural setting, first level care facilities in urban setting and are explained based on the availability of vaccination facility at the clinic, work environment, cost of the vaccine, awareness regarding the effectiveness of vaccination, professional qualification and other motivational factors.vaccination status reported in study conducted in Iran is 48.1%(20), and 43.75% in Syria(21).

On assessing relationship among variables knowledge is significantly associated with sex and basic education level that is better in doctors compared to nusring staff but knowledge level is not significantly assocaited with marital status, residence and department these findings are in line with the study conducted to assess the effect of gender on KAP in karachi (22) , ethopia(11) and in South Kivu(23) .

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Limitations we used non-probability convenience sampling to draw our sample Degree of generalizability is questionable moreover direct relationship of variables and outcomes can't be established.

CONCLUSIONS:

The overall knowledge, attitude and practices of house officers and post-graduation residents showed satisfactory outcomes while knowledge of nursing staff is relatively poor. However some areas of knowledge, such as consultation with the specialist for post exposure prophylaxis, need to be corrected or changed. Regarding practices vaccination rate needs to be improved. Health care department must take responsibility for hepatitis B testing, vaccination. It is also recommended that a policy be implemented for complete vaccination and arrange health education programs for infection control.

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