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AWARENESS OF HEPATITIS B INFECTION AND VACCINATION AMONG STUDENTS OF APPLIED MEDICAL SCIENCES COLLEGE

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ABSTRACT

Objective: This study aims to investigate the level of awareness of applied medical sciences college students, bridging program who working in government or private medical sector. This determine as significantly know about HBV; their understanding about the source of transmission, treatment, vaccination and cognizance of who should have vaccinated. **Materials and Methods:** The cross sectional descriptive study was conducted on March 2016; the target of the study is the bridging class nursing students of College of Applied Medical Sciences- Al Quwayiyah, Shaqra University. **Results:** Out of 49 respondents, 79.59% were screened and turn out to be negative and 69.23% completed the Hepatitis B vaccination. Data revealed most of them had good knowledge and understanding about the disease. **Conclusion:** Healthcare providers have a higher risk of occupational exposure to Hepatitis B virus infection therefore information dissemination and education is very vital in order for them to combat the disease. Proper screening, testing and complete vaccination should be provided upon entry into the college.

KEYWORDS: Awareness, HBV, Vaccination, Shaqra University, Saudi Arabia.

INTRODUCTION

Hepatitis B is a conceivably life-threatening liver infection caused by Hepatitis B virus (HBV). It is a colossal global health issue particularly in developing countries in Asia and Africa, with highest prevalence rate in sub-Sahara and East Asia where approximately 5-10% of the adult population is reported chronically infected.[1] The disease caused by HBV became a significant infectious occupational hazard among health care workers not only in Saudi Arabia but the whole world.[2] Nursing students are considered future health care workers. They have higher risk of occupational exposure to Hepatitis B virus infection than the general population. Nurses deal with blood and its products, biochemical wastes, bodily fluids, needle stick and sharp injuries, which transmit blood borne infections like HBV.[3] They are at greater risk contracting the HBV because of their exposure to patients during their related learning experience at the medical health care facilities. They are vulnerable to acquire potential infections which include Hepatitis B virus which is considered one of the serious infections around the world. Although there are several studies facilitated in various countries, there have been very few attempts to evaluate the knowledge, attitudes and practice of undergraduates studying in Saudi Arabia regarding occupational risks of HBV.[4] It is therefore expected that these students are knowledgeable about the etiologic agent, perception of the infection, and preventable measures that protect them from the disease.

MATERIALS AND METHODS

The cross sectional descriptive study was conducted on March 2016; the target of the study is the bridging class nursing students. A total of 49 respondents of the study are undergraduates who are currently working at various medical cities, hospitals and rural health facilities all over the Kingdom. They are students of nursing department of college of applied medical sciences- Al Quwayiyah, Shaqra University. It was conducted on March 2016 and the study would show the level of awareness of one of the various sectors of Saudi population which is the student sector. This would determine if they significantly know about the disease and their knowledge about HBV; their understanding about the source of transmission, knowledge about the vaccination and treatment and cognizance of who should have vaccinated.

Statement of the Problem

The study will seek to determine the awareness level among bridging class students of Nursing Department. Specifically, it seeks to answer the following:

1) What is the demographic profile of the respondents in terms of the following:

1.1 Age

1.2 Marital status

1.3 Number of children

1.4 Status of their Hepatitis B vaccination

2) The extent of respondents' level of awareness of Hepatitis B Vaccination in terms of;

2.1 Understanding towards the source of transmission of HBV

2.2 Knowledge about the treatment and vaccination

2.3 Knowledge of who should be recipient of the Hepatitis B vaccine

DEMOGRAPHIC DATA

Age: 20-25= 1	**26-30= 26**	**31-35= 21**	**36-40= 1**
Age Group	n		**%**
21-25	**1**		**2.04**
26-30	**26**		**53.06**
31-25	**21**		**42.86**
35-40	**1**		**2.04**
Total	**49**		**100.00**

Marital Status:		**Married 36**	**Single 13**
Single=		**13**	**26.53**
Married=		**36**	**73.47**
Total		**49**	**100.00**

Have children:	**Yes 31**		**No 18**
Yes=	**31**		**86.11**
No=	**5**		**13.89**
Total	**36**		**100.00**

Ever Screened for HBV		**Yes 39**	**No 10**
Yes=	**39**		**79.59**
No=	**10**		**20.41**
Total	**49**		**100.00**

In case Yes, When (Date)?: <5yrs ago= 15	**<10=2**	**< 15=1**	**from Mo./Year ago**
0-5=	**15**		**83.33**
6-10=	**2**		**11.11**
11-15=	**1**		**5.56**
Total=	**18**		**100.00**

HBsAg result:	**Positive 0**	**Negative 39**
Positive=	**0**	**0**
Negative=	**39**	**100**
Total=	**39**	**100**

Completed HBV vaccination on negative test:	Yes 27		No 12
Yes=	**27**		**69.23**
No=	**12**		**30.77**
Total=	**39**		**100.00**

The age of the respondents in this study ranges from 20-40 years old. 26 or 53.06% are ages 26-30 years old while 21 or 42.86% are ages 31 to 25 years old. Majority of the Respondents (36 or 73.47%) are married and 31 or 86% of the Respondents have children.

39 or 79.59% of the Respondents were screened for HBV, 15 or 83.33% of them had been screened five years ago or even earlier, while 2 or 11.11% of them had been screened 10 years ago and 1 or 5.56% had been screened 11 to 15 years ago. All of the Respondents' screening results were all negative. While 27 or 69.23% of the respondents had completed their HBV vaccination and 12 or 30.77% of the Respondents had not completed their HBV vaccination.

Statistical Analysis

Data were analyzed using SPSS packed version 17.0 (IBM SPSS Inc., Chicago, IL, USA). $P < 0.05$ was considered as significant; Chi-square test was applied for analysis of categorical data. Mean standard deviation (SD) and proportions were used to describe continuous and dichotomous data, respectively.

RESULTS AND DISCUSSION

Table 1, shows the respondents understanding towards the source of transmission of HBV. It can be seen from the data above that 28 or 57.14% of the respondents answered No when asked whether HBV can be transmitted through food or drink, while the 28 or 53.06% also answered No if Hepatitis B can be transmitted by sharing with the same plate with a person infected with HBV. Significantly only 9 or 18.37% of the respondents answered Yes if HBV can be transmitted through tears while 77.55% of the respondents answered No. A study in Eastern Yokohama Hospital, Department of Pediatrics in Kanawaga Japan has shown that levels of HBV DNA in tears specimen from young patients were enormously high.[5]

The respondents answered yes if HBV is transmitted through saliva 57.14%, blood products 95.92 %, needles 97.96%, mother to infant 63.27%, tooth brushes 79.59%, sharing razor blades 79.59%, contact with wounds or skin sores 79.59% and seminal or vaginal fluid 81.63%, respectively. Numerous studies showed high frequency of needles stick incidents and other percutaneous exposures to blood and blood products among health care workers in the Mediterranean region that includes Saudi Arabia.[6]

Surprisingly, respondents answer was vague when asked if HBV can be transmitted from the mother to the newborn through breast milk since there is similar result

for Yes and No, 30.61% and data revealed that 38.78% of the respondents do not know if HBV can be transmitted through breast milk. According to Centers for Disease Control and Prevention, it is safe for a HBV infected mother to breastfeed the newborn instantaneously after birth. All newborns delivered to HBV-infected mothers should obtain hepatitis B immune globulin and the first dose of vaccine within 12 hours after birth.[7]

Table 2, shows the respondents' knowledge about treatment and vaccination; A perplexing 55.10% of the respondents answered yes when asked if HBV patients can be cured by drugs, although are markable 26.53 % answered no. Up to this date, there is no known drug and medication available that can treat acute Hepatitis B infection. Once the patient is confined at the hospital because of considerable signs and symptoms, the physician would recommend rest, adequate nutrition and hydration.

The students are well knowledgeable about the treatment and prevention of HBV as shown on this table that a considerable number of respondents answered yes- 89.80% when asked if there is blood screening given for Hepatitis B infection, same responses were given by 36 or 73.47% of the respondents when asked if there is an antiviral therapy for Hepatitis B infection.

The existence of various blood tests which are available at the hospitals, medical centers and local health clinics make it accessible to each and everyone. The most commonly used screening test is the Hepatitis B Surface Antigen (HBsAg). The HBV can be detected in the blood during acute and chronic infection. But when asked if neonatal Hepatitis B vaccination can prevent the transmission of Hepatitis B infection from mother to babies, 67.35% answered yes. In one of the studies conducted, it is found out that 38% of babies born to HBsAg positive mothers, who did not acquire infection parentally, became infected by four years of age.[8] About41 or 83.67% of the respondents answered yes when asked if a complete set of HBV vaccination included 3 doses of vaccination. The Centers for Disease Control and Prevention (CDC) proposed that all health care workers, emergency personnel and other individuals who are exposed to blood and body fluids, should acquire the Hepatitis B vaccine.[7, 8]

Similar response was handed by the respondents when asked if there is a screening for HBV before vaccination. It can be noted that a high percentage- 93.88% answered yes when asked about screening blood donor for hepatitis B virus renders blood safe for transfusion. In Saudi Arabia itself, it has been observed that there is an abrupt decline in HBsAg prevalence among adult blood donors. In 1997, a data collated throughout the Kingdom, showing a prevalence rate of 4.4% (82,317 out of 1,888,205) which is lower compared to the prevalence rate reported in the 1980s.[9]

Table 3, shows the respondents' knowledge about who should be vaccinated. It can be gleaned upon that there are significant numbers of respondents who answered yes to the questions in this category like 45 or 91.84% of the respondents answered yes that all infants, children and teens 0-18 years, any adult who wants to be protected from HBV infection 46.94%, people seeking evaluation or treatment for a sexually transmitted disease 65.31%, 85.71% of the respondents also answered yes that all health care or public safety workers who might be exposed to blood or body fluids, residents and staff of facilities for developmentally disabled people, 51.02% adults under 60 years of age with diabetes, 63.27% dialysis and pre-dialysis, people infected with HIV 51.02%, people in close contact with someone who has chronic HBV infection 79.59%, travelers to regions of the world where hepatitis B is common 85.71%.

It can be noticed that our respondents answered incorrectly to questions 2, 4, 7, and 18. These data suggest that our respondents are confused whether the vaccine can be administered to individuals with serious allergic reaction to a prior dose of Hepatitis B vaccine, or with moderate to serious illness, during the course of pregnancy and lactation and if there are benefits and risks if the vaccine is administered to person infected with HBV.

Saudi Arabia has attested steady dwindling for all three common hepatotropic viruses during the past 30 years which could be attributed to better living conditions, childhood immunization against HBV which is included in the Expanded Program of Immunization (EPI), universal blood bank screening, and increased awareness of safe clinical and social practices. Hepatitis B virus (HBV) is the most efficiently transmissible of the blood borne viruses that are important in healthcare settings. Healthcare workers (HCWs) are at risk for exposure to HBV from infected patients and, if infected, are similarly at risk of transmitting HBV to patients.[10]

Previous study about seroprevalence of Hepatitis B and C infections among health students and health care workers in Najran region revealed that an overall seroprevalence of HBV of 1.7% and 8.7% was found among HS and HCWs, respectively. Two-thirds of HS (66.7%, 200) and 23.3% (70) of HCWs lack anti-HBs and are susceptible to HBV infection. An overall seroprevalence of HCV of 0% and 0.3% was found among the HS and HCWs, respectively. The present study indicates poor knowledge among HS and moderate knowledge among HCWs regarding occupationally transmitted blood-borne diseases, safe injection practices, and standard precautions to prevent occupationally transmitted blood-borne infections.[11, 12]

Our respondents which are bridging class students of nursing department who are previously employed in various hospitals, medical cities and health center across the Kingdom are asked survey according to their

knowledge about the source of transmission, about the treatment regimen and current vaccination program, and the person that should receive the vaccine.

Almost all of the health students answered correctly when asked about the manners of transmission of HBV. However 77.55% of the respondents answered negatively on the question if HBV can be transmitted through tears. Studies have shown that tears from children diagnosed with chronic hepatitis B virus infection are vehicles of HBV transmission. Real time polymerase chain reaction was used for quantifying the HBV DNA and the result was highly significant, 100% of tears samples.[13]

The non- governmental workers and male participants with age of ≥ 25 years. The most important predictors for increasing the risk of HBV in this study were HBV contacts, male sex, history of dental procedures and blood transfusion.[14] We should clarify, address knowledge deficits found in our survey and further tailor educational message.

Table 1. Respondents understanding towards the source of transmission of HBV.

Statement	%	%	%
HBV can be transmitted through food or drink?	36.73	**57.14**	6.12
HBV can be transmitted through Tears?	18.37	**77.55**	4.08
HBV can be transmitted through Saliva?	**57.14**	40.82	2.04
HBV can be transmitted through pre-chewing food for babies by infected person?	**55.10**	30.61	14.29
HBV can be transmitted through blood/blood product? (REF. 6)	**95.92**	2.04	2.04
HBV can be transmitted through sharing use of needles?	**97.96**	0.00	2.04
HBV can be transmitted from mother to infant?	**63.27**	16.33	20.41
An infected mother may transmit hepatitis B to her newborn baby through breast milk?	30.61	30.61	**38.78**
You may get hepatitis B by eating from the same plate with HBV infected person. ?	34.69	**53.06**	12.24
HBV can be transmitted through shaking hand with infected person?	12.24	**85.71**	2.04
HBV can be transmitted through sharing tooth brushes?	**79.59**	10.20	10.20
HBV can be transmitted through sharing razor blades?	**79.59**	16.33	4.08
HBV can be transmitted through contact with wounds or skin sores?	**79.59**	16.33	4.08
HBV can be transmitted by hugging an infected person?	20.41	**73.47**	6.12
You may get hepatitis B by sitting on a toilet seat used by an infected person	26.53	**63.27**	10.20
HBV may be transmitted by sneezing and coughing?	38.78	**61.22**	0.00
HBV can be transmitted through Vaginal/Seminal Fluid?	**81.63**	14.29	4.08

Table 2. Knowledge about the treatment and vaccination.

STATEMENT	%	%	%
All HBV patients can be cured by drugs?	55.10	26.53	18.37
There is blood screening for hepatitis B infection?	89.80	6.12	4.08
There is antiviral therapy for hepatitis B infection?	73.47	18.37	8.16
Neonatal Hepatitis B vaccination can prevent the transmission of hepatitis B infection from mother to babies?	67.35	14.29	18.37
A complete set of HBV vaccination includes 3 doses of vaccination?	83.67	6.12	10.20
Screening blood donors for hepatitis B virus renders blood safe for transfusion?	93.88	4.08	2.04
Screening for HBV before vaccination?	83.67	10.20	6.12

Table 3. Who should be the recipient of the HB Vaccine.

STATEMENT	%	%	%
All infants, children, and teens ages 0–18 years	91.84	4.08	4.08
Anyone who has had a serious allergic reaction to a prior dose of hepatitis B vaccine	53.06	32.65	14.29
Any adult who wants to be protected from HBV infection	79.59	10.20	10.20
Anyone who is moderately or severely ill	46.94	34.69	18.37
Can hepatitis B vaccine be administered concurrently with other vaccines?	46.94	14.29	38.78
People seeking evaluation or treatment for a sexually transmitted disease	65.31	16.33	18.37
Can hepatitis B vaccine be given during pregnancy or lactation?	22.45	44.90	32.65
Healthcare or public safety workers who might be exposed to blood or body fluids	85.71	2.04	12.24
Residents and staff of facilities for developmentally disabled people	75.51	14.29	10.20
Adults under 60 years of age with diabetes	51.02	30.61	18.37
Dialysis and pre-dialysis patients	63.27	10.20	26.53
People infected with HIV	51.02	30.61	18.37
People in close personal contact with someone who has chronic HBV infection	79.59	4.08	16.33

Current or recent injection-drug users	59.18	22.45	18.37
Travelers to regions of the world where hepatitis B is common	85.71	4.08	10.22
People with chronic liver disease	71.43	18.37	18.37
Can hepatitis B vaccine be given to immunocompromised persons, such as persons on hemodialysis or person with HIV infection?	53.06	38.78	10.20
Is there any benefit or risk in vaccinating a person who has been infected with HBV?	61.22	20.41	8.16

CONCLUSION

The study reaffirms the relationship between the knowledge, understanding and practices of HBV infection and is there for concluded that lack of adequate knowledge can lead to atrocious demeanor. Since applied medical science students are at increased risk of acquiring needle stick injury, and exposed to blood and bodily fluids and blood products in their professional practice, the health and science students should be vaccinated upon entry into the college. Student health department of each university in the Kingdom must take the responsibility for HBV screening and testing, vaccination, monitoring vaccine response and providing post exposure prophylaxis. It is also recommended that a policy be implemented for complete vaccination. The university should provide holistic training on infection control and prevention for all health science students before they start their clinical training in the local health facilities, hospital and medical cities around the Kingdom. We should clarify, address knowledge deficits found in our survey and further tailor educational messages to the students of applied medical sciences.

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