

## Awareness of Hepatitis B Infection among First Year College Students of Dammam University

Latifa Saad AL-Sowielem\*

### Abstract

**Objectives:** To determine the awareness of hepatitis B infection among first year college students of medical, nursing and community service of Dammam University and, to compare the knowledge level between them. **Methods:** A descriptive cross-sectional study was conducted on 485 first year medical nursing, and community service students of Dammam University (Eastern Province of Kingdom of Saudi Arabia). A self-administered questionnaire was distributed to all the students and their awareness on the definition, modes of transmission, diagnosis, complications, treatment availability and prevention of hepatitis B was obtained. [The data was entered and analyzed using SPSS 16 for Windows. Descriptive statistics with cross-tabulation were performed. The Chi square - test, and t-test was used.] **Results:** Overall, 420 (86.6%) students correctly defined hepatitis B and 76.9% knew about the types of hepatitis. The majority of the students believed that hepatitis B was blood-borne but there was poor awareness about other modes of transmission. Less than one-fourth of the students knew about needle-stick injury from an infected patient, drug abuse, careless dental procedures and mother-to-child transmission of the disease. Prevention of the disease by vaccination was known to only 54.4 % of the students. **Conclusion:** The present study concludes that the majority of the students lacked knowledge regarding important modes of transmission. They also had poor knowledge about the complications and prevention of hepatitis B. Health education needs to be given to all students regarding this subject.

**Keywords:** Hepatitis B, students, Dammam University

### INTRODUCTION

Hepatitis B virus (HBV) is an important agent of hepatitis, cirrhosis and hepatocellular carcinoma. It accounts for one million deaths annually. It is estimated currently that more than two billion of the global population have HBV infection; of whom 350 million are chronically infected<sup>(1)</sup>.

The disease has a high endemicity in the Middle East and Saudi Arabia.<sup>(2)</sup> Many studies have shown that the patterns of hepatitis B in Saudi Arabia has changed. The disease was highly endemic prior to 1990 when the national strategy to eliminate hepatitis B infection through vaccination of all infants was introduced in

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\*Family & Community Medicine, College of Medicine, Dammam University, Saudi Arabia

the Kingdom. This led to a gradual decline in the incidence of hepatitis B mainly in children.<sup>(3)</sup> Prevalence of hepatitis B surface antigen (HBs Ag) among children before this strategy was reported to be 6.7% and after implementation of the vaccination, the prevalence has dropped to 0.05%. However, the incidence among adults rose slightly perhaps, due to population growth.<sup>(3)</sup> Selected risk groups like blood donors in some studies have shown a high prevalence of hepatitis B among adult male Saudi blood donors in the north west (Tabuk) of Saudi Arabia (3%) and South-Western region (5.4%).<sup>(3,4)</sup> A report from Aramco hospital in the Eastern Province estimated the annual incidence of hepatitis "B" as 46 per 100,000 population served by them.<sup>(6)</sup> In 2010, Memish et al, in his study, reported that HBV was the most frequent cause of viral hepatitis sero-positivity.<sup>(7)</sup>

Hepatitis B remains a major public health problem in Saudi Arabia and there is a need to strengthen the effective preventive

measures. However, prior to any successful preventive program it is important to know the level of awareness of the population regarding the disease. This will help in planning need-based health education activities for the people among other preventive measures. Since it is expected that high school graduates have some basic knowledge about important prevalent diseases in the community. The objective of the current study was to determine the level of awareness of hepatitis B infection among first year female college students of medical, nursing and community service studying at Dammam University and to compare the knowledge level between students of the three different colleges. Any deficiencies in knowledge identified would be addressed by special health education sessions for this target group.

## Methods

A descriptive cross-sectional study was conducted among first year medical, nursing, and community service students of Dammam University in Dammam (Eastern

Province of Kingdom of Saudi Arabia) for a two-week period in October, 2010. A total of 485 students participated in the study All the first year medical (96), nursing (127) and community service (262) students were included in the study.

The response rate was 99%.. A self-administered questionnaire was distributed to all students and collected in the classroom. The questionnaire consisted of socio-demographic data (age, and marital status) questions related to hepatitis B in terms of definition, causes, modes of transmission, signs and symptoms, complications, prevention and treatment of the disease. The data was entered and analyzed using statistical package for Social Science Program (SPSS16 for Windows). Descriptive statistics with cross-tabulation were performed. The Chi square test, and t-test were used as appropriate. A p value less than 0.05 was considered significant.

## RESULTS

### **Demographic characteristics of the study population:**

The study included 485 first year students from the three colleges in University of Dammam out of whom, 96 (19.8%) students were from the college of medicine, 127 (26.2%) from nursing college and 262 (54%) from community service college.

The mean age of the students was  $18.1 \pm 0.60$  years with no statistically significant difference between the mean ages of the students from the three colleges ( $p = 0.69$ ).

Most of the students were not married 99.4% with no statistically significant difference between students in the medical college (91.7%), community college (91.1%) and nursing college (88.1%) ( $p = 0.361$ ).

Regarding definition of Hepatitis' 420 (86.6%) students correctly defined it as an inflammation of the liver. Medical students were the most knowledgeable and the difference in the responses of the three

groups of students on this question was statistically significant ( $p=0.029$ ) (table1)

Table 1 shows that the question on types of Hepatitis was answered correctly by 76.5% of the students. Most of them were medical students (89.6%), the difference between the three groups was

found to be statistically significant ( $p=0.003$ ). Also, the cause of hepatitis was

answered correctly by 64.6% of medical students compared on lie 58.4% of the community service students, the difference was found to be statistically significant, ( $p=0.037$ ).

**Table 1: Distribution of first year medical, nursing and community service students of Dammam University according to the knowledge regarding the etiology of Hepatitis B**

Variable	Medicine		Nursing		Community service		Total n=485		P value
	No.	%	No.	%	No.	%	No.	%	
<b>Definition of hepatitis:</b>									
• correct	88	91.7	115	90.6	217	82.8	420	83.6	0.029*
• Incorrect	8	8.3	12	9.4	45	17.2	65	13.4	
<b>Types of hepatitis:</b>									
• correct	86	89.6	93	73.2	192	37.3	371	76.5	0.003*
• Incorrect	10	10.4	34	26.8	70	26.7	114	23.5	
<b>Causative agent:</b>									
• correct	62	64.6	91	71.7	153	58.4	306	63.1	0.037*
• Incorrect	34	35.4	36	28.3	109	41.6	179	36.9	

\* significant at  $p<0.05$

Table 2 shows that while nearly two-thirds of the students (64.5%) correctly knew about blood-borne transmission of hepatitis B, less than a third of them knew through blood transfusion, contact with infected blood in laboratory work, sharing razor blades, tattoo using infected needles,

about the different modes of transmission.

The medical students were significantly more knowledgeable than their counterparts for transmission of hepatitis B non-sterilized equipment in dental surgery, mother to child transmission, sexual relation with infected partner and drug

abusers. The community service students, on the other hand, were slightly more aware (41.1%) compared to medical (36.3%) and nursing (18.9%) students for transmission through needle-stick injury from an infected patient ( $p < 0.001$ ).

Overall the majority of the students (80.3%) knew that hepatitis B infection could present with symptoms. A significantly lesser proportion of community service students (76.3%) had this information compared to the medical (84.2%) and nursing groups ( $p=0.011$ ). Diagnosis of hepatitis by blood tests was reported by 64.6% of medical students, 59.1% of nurses and 42.4% of community service students, the difference being

statistically significant ( $p= 0.001$ ).

Table 3 shows that the most common complication to be reported by the students was Liver cirrhosis (50.5%) while liver cancer was not known by the majority (84.5%).

Nearly two thirds (63%) of the of nursing students indicated that liver cirrhosis is one of the complications of hepatitis B compared to 55.2% of medical students and 44.7% of community service students the difference is statistically significant ( $p=0.002$ ). On the other hand, community service students were significantly more knowledgeable than the medical and nursing students for liver cancer as a complication of hepatitis B ( $p=0.016$ )

**Table 2: Distribution of first year medical, nursing and community service students of Dammam University according to the Knowledge on the mode of transmission of hepatitis B**

Mode of transmission	Medicine		Nursing		Community service		Total N=485		P value
	No.	%	No.	%	No.	%	No.	%	
Blood borne transmission									
• Yes	75	78.1	83	65.4	155	59.2	313	64.5	0.004*
• No	21	21.9	44	34.6	107	40.8	172	35.5	
Dentistry operation with infected case									
• Yes	32	33.3	19	15.0	36	13.7	87	17.9	
• No	64	66.7	108	85.0	226	86.3	398	82.1	
Contact with infected blood in the laboratory									
• Yes	43	44.8	28	22.0	61	23.3	132	27.2	<0.001*
• No	53	55.2	99	78.0	201	76.7	353	72.8	
Sexual relation with infected partner									
• Yes	48	50.0	31	24.4	57	21.8	136	28.0	<0.001*
• No	48	50.0	96	75.6	205	78.2	349	72.0	
Mother to child transmission									
• Yes	31	32.3	19	15.0	50	19.1	100	20.6	0.004*
• No	65	67.7	108	85.0	212	80.9	385	79.4	
Needle stick injury from infected patient									
• Yes	35	36.3	24	18.9	37	41.1	96	19.8	<0.001*
• No	61	63.5	103	81.1	225	85.9	389	80.2	
Drug abusers									
• Yes	37	38.5	20	15.7	41	15.6	98	20.2	<0.001*
• No	59	61.5	107	84.3	221	84.4	387	79.8	
Sharing razor blades									
• Yes	53	55.2	25	19.7	74	28.2	152	31.3	<0.001*
• No	43	44.8	102	80.3	188	71.8	333	68.7	
Tattoo using infected needles									
• Yes	49	51.0	26	20.8	48	18.3	123	25.4	<0.001*
• No	47	49.0	101	79.5	214	81.7	362	74.6	
Non sterilized equipment in dentistry operation									
• Yes	46	47.9	28	22.0	51	19.5	125	25.8	<0.001*
• No	50	52.1	99	78.0	211	80.5	360	74.2	
Sharing tooth brushes									
• Yes	28	29.2	19	15.0	43	16.4	90	18.6	0.011*
• No	68	70.8	108	85.0	219	83.6	395	81.4	

\* significant at  $p < 0.05$

**Table 3: Distribution of first year medical, nursing and community service students of Dammam University according to their knowledge regarding the complications of hepatitis B .**

Complications of Hepatitis B	college								P value
	Medicine		Nursing		Community service		Total n=485		
	No.	%	No.	%	No.	%	No.	%	
<b>Liver cirrhosis</b>									
• YES	53	55.2	80	63	117	44.7	250	51.5	0.002*
• NO	43	44.8	47	37	145	55.3	235	48.5	
<b>Liver cancer</b>									
• YES	15	15.6	10	7.9	50	19.1	75	15.5	0.016*
• NO	81	84.4	117	92.1	212	80.9	410	84.5	
<b>Chronic hepatitis</b>									
• YES	25	26	32	25.2	72	27.5	129	26.6	0.884
• NO	71	74	95	74.8	190	72.5	356	74.3	

\* significant at  $p < 0.05$

Table 4 shows that overall, more than half of the students (53.4%) believed that there was treatment for hepatitis B but recurrence was prevalent. There was no significant difference in the responses of the three groups of students ( $p=0.947$ ). Knowledge of vaccine for prevention of hepatitis was also known to half of the students (54.4%) with more nursing students aware of it than their counterparts ().

**Table 4: Distribution of first year medical, nursing and community service students of Dammam University according to their knowledge regarding the prevention and treatment of hepatitis B virus (HBV).**

Variable	Medicine		Nursing		Community service		Total n=485		P value
	No.	%	No.	%	No.	%	No.	%	
<b>HBV treatment</b>									
• Available	31	32.6	36	28.8	79	31.6	146	31.1	0.947
• Not available	16	16.8	20	16.0	37	14.8	73	15.5	
• Available but recurrence	48	50.5	69	55.2	134	53.6	251	53.4	
<b>HBV vaccine</b>									
• Correct	57	59.4	86	67.7	121	46.2	264	54.4	<0.001*
• Incorrect	39	40.6	41	32.3	141	53.8	221	45.6	

**DISCUSSION AND CONCLUSION:**

The majority of the students defined hepatitis B correctly. Medical students knew more about the types and the causative agent of hepatitis than non-medical students. Similar findings were reported by Al Jabrietal<sup>(8)</sup> and Duad et al<sup>(9)</sup>.

Regarding transmission of the infection, more medical students correctly regarded blood borne transmission, sexual relation, dentistry operation, sharing razors, tattooing as important modes of transmission of infection compared to the community service students. These findings were similar to a study in Muscat (Sultanate of Oman) in which it was found that medical students were more knowledgeable than the non-medical students.<sup>(8)</sup> Also, Anjum et al reported that 95% of students responded that blood transfusion is an important mode of transmission.<sup>(10)</sup> Perhaps, a better background of science at high school level

among medical students compared to non-medical candidates explains this finding.

Surprisingly the majority of the students had poor knowledge regarding transmission of the infection among drug abusers, mother to child transmission and accidental needle stick injury from infected patients. Only one-third of the medical students knew about these modes of transmission. A study performed in Pakistan reported insufficient knowledge about the transmission of hepatitis among pre-clinical years.<sup>(11)</sup> Another study in India also reported that second year medical students had poor knowledge about transmission of hepatitis.<sup>(12)</sup> Knowledge of transmission of hepatitis B by needle stick accident is essential specially for medical and nursing students because they have an increased risk of this accident in their future careers and hence they need to be educated to exercise caution in handling needles. Lack of Knowledge of

transmission of hepatitis from the mother to the child is similar to a study done among first year nursing and medical students in a university of North India.<sup>(13)</sup>

A significantly larger proportion of medical and nursing students had knowledge about the diagnosis of hepatitis compared to community service students and this finding is similar to that of a study done among university students in India, where it was found that biological science university students had better knowledge than non-biological sciences students regarding health topics<sup>(14)</sup>.

It was encouraging to note that a majority of students knew that there was treatment available for Hepatitis B but disappointing to learn that about half of students were not aware that the disease could be prevented by vaccination. This is an unexpected finding considering it is well known that hepatitis B vaccination was introduced as a mandatory procedure to all

infants in the kingdom in 1990.<sup>(3)</sup> Also our findings is lower than a study by Khan et al who reported 75% of first year medical students were aware of hepatitis B vaccine<sup>(15)</sup>.

The present study concludes that in general, the awareness for hepatitis B among the first year medical students is better than that for nursing or community service students regarding the epidemiology and the transmission of the disease. Overall, a majority of the students lacked knowledge regarding transmission of hepatitis B by accidental needle-stick injury, drug abuse, careless dental procedures and mother-to-child transmission.

Moreover, many students had poor knowledge about the complications of hepatitis especially liver cancer and chronic hepatitis. Moreover, around half of the medical and nursing students were not aware of vaccination.

Students are one of the best groups to focus for health education. In Saudi Arabia, the curriculum of the high school students should include education on hepatitis B, modes of transmission and its prevention. Also; universities should conduct well-designed awareness programs and workshops on hepatitis B. Health education at PHC centers should focus more on risk factors of transmission and prevention of spread of hepatitis B. Health education campaigns in schools and at Malls is also recommended for wider publicity. These efforts are likely to lower the prevalence of the disease in the community.

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