

Awareness of hepatitis B virus among undergraduate medical and non-medical students

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ABSTRACT

Objectives: To investigate the awareness of Omani medical and non-medical students of hepatitis-B virus (HBV) infection.

Methods: A structured questionnaire of 31 different statements concerning basic knowledge of HBV, its modes of transmission, diagnosis, risk behaviors, prevention, treatment, beliefs as well as attitudes towards patients with HBV infection were distributed to 280 students (154 females and 126 males). Of these 138 were pre-clinical medical students and 142 were non-medical students. The study was conducted at Sultan Qaboos University, Muscat, Sultanate of Oman during the period of 2001 to 2003.

Results: The majority of the students (75%) were aware that HBV is a common cause of hepatitis and 50.7% of them think that HBV infection is preventable. Availability of vaccine is a fact appreciated more by

medical (65.2%) than by non-medical (35.2%) students ($p < 0.05$). Approximately 70% of the cohort believed that screening blood for HBV renders blood safe for transfusion. Hepatitis B virus infected student or colleague in the same classroom or working place was accepted by 58% of medical and 46.5% of non-medical students. However, the majority of students (63.2%) hesitate to take care of a HBV infected patient.

Conclusion: The majority of students showed some knowledge regarding HBV transmission, risk behaviors and prevention. However, there are still misconceptions regarding the attitudes, which reflect a false perception of the disease among students. This calls for well-structured health education programs stressing on such misconceptions.

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Viral hepatitis is a major problem in many countries all over the world and especially in Asia, Middle East and Africa.¹ Oman is known to be among the high endemicity countries for hepatitis B virus (HBV) infection.^{1,2} The prevalence of hepatitis B virus surface antigen (HbsAg) in Oman is approximately 5% (unpublished data from blood banks of blood donors), which is relatively high. A survey of women attending antenatal clinics showed that approximately 9% were positive for HbsAg and 38.5% had anti-S-antibodies.^{2,3} The actual

prevalence HBV infection in Oman is probably much higher than 5%. Like the human immunodeficiency virus (HIV) epidemic, HBV infection may well be on the increase.^{4,5} Proper education for people, especially young individuals, will be an effective tool in reducing the spread of HBV and HIV within this and other neighboring countries.^{4,5} An important starting point for designing proper prevention tools is to assess people's knowledge of viral hepatitis, especially among the educated persons and those who may be

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in contact with infected individuals. Thereafter, the knowledge and attitudes toward HBV infection can be established within the community as a whole. Although an effective vaccine is now available for HBV, not everyone will have an access to the vaccine, therefore the public health education is still the best means of combating this disease. The Ministry of Health (MOH) in Sultanate of Oman is doing an excellent job in terms of prevention through different channels including public awareness through the mass media. However, as far as we know, there was no study to assess the knowledge level and the attitudes of the Omani people toward HBV infection. Various HBV and HIV related knowledge, attitudes, beliefs, and practice studies were carried out in different parts of the world.^{4,6-9} These studies revealed the presence of apparent unease or prejudice among those lacking proper knowledge on various aspects of HBV. The present study is one part of a large study on infectious diseases in general and the first to evaluate knowledge of Sultan Qaboos University (SQU) students regarding viral hepatitis B and the attitudes toward infected individuals. It aims to discover the deficits in the Health Education Programs and relate the knowledge to the improvement in the prevention programs against HBV infection.

Methods. Two hundred and eighty undergraduate students from the Colleges of Medicine and Health Sciences, Science, Arts and Social Studies of SQU, Muscat, Sultanate of Oman participated in this survey. Among the 280 students, males constituted 45% (126 males) and females constituted 55% (154 females). Of all respondents 138 (49.3%) were from the medical school (pre-clinical students), while 142 (50.7%) were non-medical students. The mean age of the whole cohort was 22 years (range 18-28 years).

The questionnaire consisted of 31 different statements concerning basic knowledge of HBV, its modes of transmission, diagnosis, risk behaviors, prevention, treatment, beliefs as well as attitudes toward HBV infected individuals. The questionnaire was modified in accordance to the Omani culture, by referring to other survey questionnaires used in previous research.^{4,6-9} The first 5 statements were on general knowledge of the virus and the disease. The next 12 statements were on the knowledge of different modes of HBV transmission such as contracting HBV through semen and vaginal secretions or from mother to unborn child or through breast milk. Students were asked whether HBV could be transmitted through sharing public toilet seats or sharing the same glass used by an infected individual. Four statements were on the symptoms of patients with hepatitis B infection, drug treatment and the availability of vaccine for the

prevention of HBV infection. Finally, 10 statements regarding personal attitudes toward HBV positive individuals were asked. These included 5 statements on behaviors and attitudes toward infected individuals and 5 other statements on caring for patients with HBV infection (**Appendix 1**).

Data analysis. The responses to the questionnaire were in the form of agree, do not agree or do not know. The data were completely collected in 2003 and analyzed statistically using Statistical Package for Social Sciences program (SPSS 9.0 for Windows).

Results. The majority of students (75%) were aware that HBV is a common cause of hepatitis. Of the undergraduate medical students, 9.4% were unaware that HBV is a common cause of hepatitis compared to 38% of the non-medical students. There is an overall agreement that needles (53.2%), vaginal secretion (51.1%), semen of infected men (52.1%) and vertical transmission (57.5%) are the modes of transmission of HBV. Regarding sharing of a toilet with an infected person, only 11.8% of the students think it could transmit the infection. Approximately 60% of the students considered hugging is safe and 46.3% considered sharing the same glass with an infected person is safe. Although 41.1% of participants were not sure that sneezing and coughing transmits HBV, 17.1% believed it may occur and 41.8% were sure it is not a mode of transmission. When we compared medical and non-medical students knowledge of the modes of transmission of HBV, 73.9% of medical students compared to 40.1% non-medical were aware that a mother can transmit HBV to her unborn child ($p<0.001$). Moreover, 69.6% of medical students compared to 36.6% non-medicals ($p<0.05$) were aware that sharing needles with an HBV infected individual is an important mode of HBV transmission. Of the medical students, 67.9% and 65.2% believed that semen and vaginal secretions are modes of HBV transmission compared to 36.1% and 36.6% non-medicals ($p<0.05$). In general terms, and as expected, medical students have more knowledge on HBV and its modes of transmission than non-medical students. More than half the cohort (50.7%) believed that HBV infection is preventable (**Appendix 1**). Availability of a vaccine is a fact appreciated by more medical (65.2%) than the non-medical (35.2%) students ($p<0.05$). Having a student or colleague in the same classroom or working place was accepted by 72.1% of the students. However, the majority of participants were either not sure or do not know whether patients with HBV infection should be separated, prohibited from eating or playing sports with others, or should not be allowed to handle food. Moreover, the majority of students (63.2%) would feel uncomfortable to take care of HBV infected patients.

DISCUSSION. Hepatitis B virus infection can evoke irrational emotions and fears in health care providers, including medical students and the general public.^{6,7} If unexamined, these fears may produce a barrier to successful educational efforts on HBV infection and may result in a variety of adverse outcomes. In general, health care professionals and the general public have been reported to have negative attitudes towards people with HBV infection and usually nursing and first year medical students show great fear of contagion, negative emotions and professional resistance.^{6,8} There are many factors associated with negative HBV infection related attitudes. These include: less liberal ideology, a low knowledge level, young age, fear, exaggerated risk assessment, not knowing someone with HBV infection and lacking the experience of caring for patient with HBV infection.¹⁰

This study was confined to students from SQU, whom we expected to have adequate and appropriate knowledge on infectious diseases in general including HBV infection compared to the rest of the Omani community. The students represent a dynamic, highly educated and highly positioned group in the Omani society. Therefore, they are expected to play a crucial role in limiting the increasing number of HBV infection cases and in promoting health education in Oman. The findings of this survey are, generally, satisfactory despite some disappointing facts on basic knowledge, for example, 25% of the participants either think that HBV infection, is not caused by a virus or they do not know. Most of the respondents showed some knowledge regarding the modes of HBV transmission. For specific modes of transmission (for example coughing and sneezing), the majority of participants were not sure. The majority of responses indicate that students knew what HBV is, and how it can be transmitted and how it can be avoided. Significant differences between medical and non-medical participants were observed for the following modes of transmission: sharing needles ($p < 0.05$), vaginal secretions ($p < 0.05$), semen ($p < 0.05$) and mother to fetus ($p < 0.001$). Health care personnel and the general public have been reported to have negative attitudes toward people with HBV infection.^{6,7,10} Some misconceptions were observed, in the present study, regarding interaction with infected individuals especially taking care of a HBV infected patient. Although, most of the students indicated that they have never met a person with HBV infection, they express fears regarding eating, working or living with infected individuals. These misconceptions regarding the attitudes, reflects a false perception of the disease among those highly educated. Knowledge alone is not sufficient to bring behavioral changes. Therefore, this calls for

well-structured health education programs to address such misconceptions. These educational programs should be initiated at school level and extended beyond formal education to reach parents and other adults in the community.⁴ Seminars, workshops and conferences will provide communication platforms for students at SQU and will be relevant for use at wider school and community levels. Collaboration amongst the University, Ministry of Health, Ministry of Religious Affairs, Ministry of Information and educational specialists should be built across the nation to implement comprehensive programs of research, prevention, treatment and special education is needed for HBV infection.

Deficiencies in knowledge with regard to blood-borne pathogens such as HIV and HBV may influence attitudes toward infected individuals and reduce compliance with infection control recommendations.^{4,10,11} Our findings suggest that low levels of HBV knowledge demonstrated a need for targeted educational intervention aimed at reducing HBV infection and HBV related liver cancer mortality among Omanis.

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Appendix 1

Percentage response to some of the statements on awareness of hepatitis B virus infection (N=280).

Statement	Agree			Do not agree			Do not know		
	All	Medical	Non-medical	All	Medical	Non-medical	All	Medical	Non-medical
Knowledge									
Hepatitis B virus is a common cause of hepatitis	75	90.6	59.2	1.4	0	2.8	23.6	9.4	38
Screening blood donors for hepatitis B virus renders blood safe for transfusion	68.9	71.7	64.8	7.1	13	1.4	23.9	15.3	33.8
You may get hepatitis B by eating from the same plate with a hepatitis B virus- infected person	11.8	9.4	13.4	54.3	69.6	38.7	33.9	21	47.9
You may get hepatitis B by hugging an infected person	6.1	4.3	7.7	59.6	77.5	40.8	34.3	18.1	51.4
Men may transmit hepatitis B virus to others through semen	52.1	67.4	36.6	8.6	6.5	10.6	39.3	26.1	52.8
Modes of transmission									
Women may pass hepatitis B virus to men through vaginal secretions	51.1	65.2	36.6	8.2	7.2	9.2	40.7	27.5	54.2
Hepatitis B virus may be transmitted from a pregnant woman to her unborn child	57.5	73.9	40.1	5	3.6	6.3	37.5	22.5	53.5
An infected mother may transmit hepatitis B to her newborn baby through breast milk	30	38.4	20.4	19.6	22.5	16.9	50.4	39.1	62.7
You may get hepatitis B by drinking from the same cup used by an infected person	14.3	15.9	12.7	46.1	56.5	35.2	39.6	27.5	52.1
Hepatitis B virus may be transmitted by needles used for piercing ears	53.2	69.6	36.6	6.8	6.5	6.3	40	23.9	57
You may get hepatitis B by sitting on a toilet seat used by an infected person.	11.8	10.1	13.4	43.6	63	24.6	44.6	26.8	62
Hepatitis B virus may be transmitted by sneezing and coughing	17.1	15.9	18.3	41.8	58.7	24.6	41.1	25.4	57.1
Treatment and prevention									
All hepatitis B patients can be cured by drugs	11.8	13.8	9.9	43.2	54.3	31.7	45	31.9	58.4
A vaccine is available to protect people from hepatitis B	50.7	65.2	35.2	5.7	8.7	2.8	43.6	26.1	62
Attitudes and behaviors toward infected individuals									
I would not mind having a student or colleague with hepatitis B in my classroom or work place.	52.5	58	46.5	19.6	22.5	16.2	27.9	19.5	37.3
Students with hepatitis B should not share sleeping rooms with other students.	23.2	24.6	21.1	47.9	58	37.3	28.9	17.4	41.5
I would not mind eating from the same plate with a person with hepatitis B	33.2	44.2	22.5	39.6	37	40.8	27.1	18.8	36.6
I would feel uncomfortable to hug a person with hepatitis B	35.4	37.7	32.4	37.1	45.7	28.9	27.5	16.6	38.7
Caring for a patient or relative with hepatitis B would make me feel uncomfortable	36.8	40.6	33.1	36.4	44.9	28.2	26.8	14.5	38.7
People with hepatitis B should not be allowed to work in restaurants or cafeterias	46.4	50.7	40.8	20	26.8	13.4	33.6	22.4	45.8