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AWARENESS OF HEPATITIS B INFECTION IN JEDDAH POPULATION OF SAUDI ARABIA

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ABSTRACT

The aim of the present work was to study the awareness of general public about the HBV infection among Saudi population in Jeddah city. Study was conducted based on survey (questionnaire). Data of age, sex, marital status (single, married, divorced, widowed), education (primary, middle, high school, university) and occupation (employed, unemployed, healthcare, student etc) was collected during the period from 25 Nov 2017 to 10 Feb 2018 from the participants (n: 5106; age range: 21-36 years). The z score test was applied for the comparison of percentage values. The p value < 0.05 was considered statistically significant. Results showed highly significant variations for the participants having little or more knowledge (65.35%) compared to those with no knowledge (34.65%) about HBV infection. Significant variation for age, various levels of education, and existence, contagiousness, vaccine protection and treatment of HBV infection was found between those having awareness and those not having awareness of HBV infection. Some 75% participants considered that there might be a vaccine for prevention of hepatitis B virus. Considering the results, it is recommended that the general public should have awareness about their life style and decrease the risk factors so that they may lead to better healthy life with fewer complications. It also seems equally essential to have training programs at the governmental level to provide awareness and general knowledge to masses about healthcare, hygiene and disease. Further survey studied are needed with this perspective to comprehend the attitudes of people about HBV and related infections.

KEY-WORDS: Hepatitis B virus (HBV) infection, Hepatitis B awareness, vaccine protection, risk factors.

INTRODUCTION

The hepatitis B virus (HBV) is considered a global problem which threatens the public health (Locarnini *et al.*, 2015; Jaquet *et al.*, 2017; Liu *et al*., 2017; Roupa *et al.*, 2019). It may cause chronic infection which develops to liver cirrhosis and leads to death. The population infected with HBV has been found to be about 2 billion people, whereas annually 360 million people getting chronic liver disease and 600 thousand facing death either from chronic liver disease or liver cancer globally (Aljarbou, 2013). It has been demonstrated that various regions were different for prevalence of HBV infection and were classified as high, low and moderate epidemiologically (WHO, 2007). The lifetime risk of HBV infection in areas of intermediate endemicity is 20-60% where acute hepatitis B infection is the most common and a variety of infections occur in adults (WHO, 2007, 2009). The average prevalence of chronic HBV infection in developed countries is 6.6% and in developing countries 7.6% (Chen *et al.*, 2000; Al-Faleh, 2003). World Health Organization (WHO, 2017) estimated high prevalence of HBV in Africans (6.1 %) and Western Pacific region (6.2%).

Saudi Ministry of Health (MOH) reported in 2007 that HBV infection is the second most common viral disease after Chickenpox Virus (Almalki *et al.*, 2011). In Saudi Arabia, HBV chronic infection is considered as a serious condition. Hepatitis B virus (HBV) infection is endemic in the Kingdom of Saudi Arabia which is between 7% and 8% (Bashawri *et al.*, 2004). Depending on the regions, studying the prevalence of HBV in Saudi Arabia, at the last 2

years showed marked variations according to regions such as southwestern regions as 8.7%, the eastern region as 6.7%, and the northwestern region as 3.0% (Bashawri *et al.,* 2004). Madina had higher prevalence as 9.02 % and the central city of Riyadh had the lowest prevalence estimated as 1.5% (El-Hazmi, 2004; El Beltagy *et al.,* 2008; Alqahtani *et al.,* 2014). In the last two decades in Saudi Arabia, prevalence of HBV infection among the general population and the infection in different age groups (Al-Faleh, 1988, 2003; Al-Faleh *et al.,* 1992,1993,1999), in blood donors (Shatoor and Zafer, 2002; El-Hazmi, 2004), health care workers (Almuneef *et al.,* 2006), pregnant women (Alrowaily *et al.,* 2008), virus genotypes and its relation to hepatocellular carcinoma (Ayoola and Gadour, 2004; Abdo *et al.,* 2006) have thoroughly been studied. These studies show that HBV infection is endemic in Saudi Arabia (El-Hazmi, 2004).

Millions of pilgrims from various countries come to the city of Jeddah annually which show greater number of HBV infections (Almalki *et al*., 2011). The prevalence among pilgrims was 4.1%, - higher in males (87.5%) and in age group of 40-59 years (60%). It was higher in Nigerian pilgrims (Al-Ghamdi and Mohammad-Ayman, 2015).

The prevalence of HBsAg in 1990s was high in Saudi Arabia among infants and children but when the national vaccination program was initiated, the HBV infection decreased in infants and children. However, the prevalence in the adults was still high since they did not take the vaccine doses earlier before their exposure to the infection (AI-Faleh *et al.,* 1999; Madani, 2007). Factors that affect a person's immunity and make someone a non-responder to HBV vaccine include obesity, genetics, smoking, immune deficiency, male gender and technical errors in vaccine storage (Al-Ghamdi *et al.,* 2013; Chathuranga *et al.,* 2013; Spradling *et al.,* 2013; Posteraro *et al.,* 2014). Since no study has precisely been carried out to have awareness about hepatitis B in Saudi Arabia, our aim, in the present study, was to estimate the awareness of hepatitis B virus among Saudi population of Jeddah city. Awareness about the hepatitis B infection has been viewed earlier in various perspectives (Bakir *et al.,* 1995; Hussain, 1999; Ashri, 2008; Jaquet *et al.,* 2017; Liu *et al.,* 2017; Roupa *et al.,* 2019). However, further comprehensive studies were thought to be required to have better understanding regarding HBV and other infections in the city of Jeddah.

MATERIALS AND METHODS

The present study was conducted in the city of Jeddah, Kingdom of Saudi Arabia (KSA). The prospective study was a questionnaire-based survey. The sample size in the sudy was 5106 subjects (total male subjects: 975; total female subjects: 4131). The age ranged between 21 to 36 years. The general status of the subjects (sex, marital status, region and education) is given in Table 1 and the employment status in Table 2.

Table 1. General status of the participants (N = 5106).

General status of the subjects		Subjects	
		Number of participants (n)	%
Sex	Male	975	19.10
	Female	4131	80.90
Marital status	Single	2549	49.92
	Married	2379	46.59
	Widow	30	0.59
	Divorsed	148	2.90
Region	South	2787	54.58
	North	2309	45.22
	East	10	0.20
Education	Primary	89	1.74
	Middle	310	6.07
	High school	1623	31.79
	University	3084	60.40

The detailed questionnaire was designed by including the specific criteria. Aims and objectives of research were explained to all study subjects. After taking the consent of subjects, the detailed questionnaire was filled out by them. The questionnaire was used to collect sociodemographic and HBV-related awareness data from each study participant. The sociodemographic factors were: age, sex, marital status (single, married, divorced or widowed),

education (primary, middle, high school, university) and occupation (employed, unemployed, healthcare, student etc). Data were collected during the period from 25 Nov 2017 to 10 Feb 2018. The Z score test was applied for the comparison of percentage values. The p value < 0.05 was considered statistically significant. The collected data was analyzed statistically by SPSS software version 16.

Table 2. Employment status of the subjects (N = 5106).

Employment		Number of subjects (n)	%
Unemployed		2207	43.22
Employed		2899	56.78
	Jobs	1445	28.30
	Healthcare	269	5.27
	Prisnors*	233	4.56
	Students*	952	18.65

* prisnors and students obtained regular stipend.

RESULTS AND DISCUSSION

The present study included 5106 participants in Jeddah city of KSA. Most participants were single 49.92% (n = 2549), followed by married 46.59% (n = 2379), widow 0.59% (n=30) and divorced 2.90% (n = 148) . The majority of the sample is of Saudi nationality (95% ; n = 4849). For geographical distribution, most of the participants were from the south region 54.58 % (n = 2787) compared to north region 45.22% (n = 2309) while few of them from east region 0.20% (n =10). The economic status of most participants (81.94% ; n = 4184) was medium (Table 1).

The highest answer for the relationship with the infected person was cousin 13.9% (n= 708) followed by a friend 4.2% (n = 216), and other reported relationships (prisoner, neighbor, husband, patient, wife, chief, workers) were found as about 4.99% (255) , and only 0.7% (n = 37) of the respondent revealed that they were the infected persons.

The participants in the present study were having different level of education : primary (1.74% ;n=89) , middle (6.07% ; n=310), high school (31.79% ; n=1623) and university (60.40%; n=3084) (Table 1). Majority of the participants were unemployed (43.22%; n=2207) , but 28.30% (n=1445) were employed in different jobs, 5.27% (n=269) of them represented healthcare workers, 4.56% (n=233) represented prisoner and 18.65% (n=952) were students. In total the employed subjects were 56.78 % (n: 2899) (Table 2). Employed subjects were quite high in number and hence statistically significantly different from unemployed subjects (z score: -9.6017; p<0.00001) in the present study.

Regarding the knowledge about hepatitis B virus epidemiology among participants, 65.35% (n: 3337) had little or more information about HBV infection, whereas 34.65% (n=1769) had no any knowledge about HBV infection (z: 20.97; p < 0.00001; Table 3).

The participants with high level education having awareness of HBV infection were 22.8% of total participants (n=1169) and in the groups of having and not having awareness of HBV infection differed with high significance (p < 0.00001; Table 3), whereas 7.85% of total subjects (n = 401) of high school education showed significant variation for those having compared to those not having awareness of HBV infection (p < 0.00001; Table 3). The results for the group of middle education (n:120; 2.35% of total subjects) indicated significantly decreased awareness of HBV infection (p=0.0001; Table 3). The participants having primary education who were 0.4% (n:21) of total subjects with primary education were more in number for those having no awareness of HBV infection compared to those having awareness of HBV infection (p < 0.00001; Table 3).

Knowledge regarding HBV was found to associate with the age of the participants (association present and association not present was noted in 22.15 % (n:1131) and 77.85 % (n: 3975) respectively showing z as -34.77 and p < 0.00001) (Table 3). About 41.56% (n = 2122) of participants had view that hepatitis B virus is not contagious while the rest of 58.44 % (n=2984) thought it as contagious (z: 11.89; p < 0.00001; Table 3).

The 75.91% (n = 3876) of participants believed that there are cases of HBV infection in Saudi Arabia, whereas only 24.09% (n = 1230) revealed that they know some patients with Hepatitis B virus infection (z:32.05; p < 0.00001; Table 3). The 75.09 % (n= 3834) of them believed that there is a vaccine that protects against this disease. The remaining 24.91 % (n: 1272) did not know that there is a vaccine that protects against this disease (z: 32.05; p < 0.00001; Table 3).

The present study is quite similar to the previous studies (Alqahtani *et al.,* 2014; Kurdi *et al.,* 2014; Wedhaya *et al.,* 2017) though the prevalence and awareness of HBV infection in these studies differed in view of the applied methodologies for selecting, collecting and analyzing the data. A substantial number of participants in the present study provided their views that there are ways hepatitis B virus can be controlled whereas in the previous study even higher number of participants viewed that hepatitis B infection is curable (Wedhaya *et al.,* 2017). Furthermore, quite high percent of participants in the current study thought that there might be a vaccine for prevention of hepatitis B virus

Table 3. Knowledge of HBV infection and its association with other factors.

Knowledge of HBV infection and its association with other factors			No. of subjects		z	p
			n	%		
1.Knowledge about Hepatitis B infection epidemiology	Have a little or more information		3337	65.35	20.9705	< 0.00001
	Have no information		1769	34.65		
2.Knowledge of Hepatitis B infection and demographic characteristics (education)	Primary	Yes	21	23.60	-4.4046	<0 .00001
		No	68	76.40		
	Middle	Yes	120	38.71	-3.878	< 0.0001
		No	190	61.29		
	High school	Yes	401	24.71	-18.1827	< .00001
		No	1222	75.29		
	University	Yes	1169	37.91	-13.0516	< 0.00001
		No	1915	62.09		
3.Knowledge of Hepatitis B infection and age(21-35 years)	Yes		1131	22.15	-34.7713	< 0.00001
	No		3975	77.85		
4.Knowledge that Hepatitis is a contagious disease	Yes		2984	58.44	11.8935	<0 .00001
	No		2122	41.56		
5.HBV infection in KSA	HBV infection cases present in KSA		3876	75.91	32.8764	< 0.00001
	Only some infection cases present in KSA		1230	24.09		
6.Do they know that there is a vaccine that protects against the disease?	They know that there is a vaccine that protects against the disease		3834	75.09	32.0488	< 0.00001
	They do not know that there is a vaccine that protects against the disease		1272	24.91		

Available data provides us information that there is a relationship between awareness level and age. Furthermore, there is a tendency of awareness to increase as educational level increases. It is recommended that the general public should have awareness about their life style and decrease the risk factors. Public education in this respect is essential and government may arrange programs to provide awareness to masses about healthcare, hygiene and disease. Further survey studies should be undertaken awareness of HBV and other related infections.

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