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Medical students' awareness of and compliance with the hepatitis B vaccine in a tertiary care academic hospital: An epidemiological study

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Hepatitis;
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Summary
Background: The hepatitis B virus (HBV) poses a health risk to healthcare workers who are in close proximity to infected individuals. Medical students are a particularly high-risk group due to the lack of an obligatory vaccination program and a post-vaccination screening program to determine immunity status, which results in a lack of awareness of and compliance with the HBV vaccine.
Methods: This cross-sectional survey was conducted in King Khalid University Hospital (KKUH), a tertiary care academic hospital in Riyadh, Saudi Arabia, from November 2013 to March 2014. Medical students in their second to fifth years ($n = 444$; 213 men and 231 women) completed a self-administered questionnaire regarding awareness of HBV and compliance with the HBV vaccination program in KKUH.
Results: Medium to low knowledge levels were present in 53.5% of the participants, and 44.3% reported that they were not compliant with the vaccination program provided by KKUH. While 93.9% received the HBV vaccine upon entry to medical school, only 59.5% received all 3 doses, citing forgetfulness and a busy schedule as common reasons for the low compliance. There was no association between the knowledge and awareness of the participants and their compliance ($p = 0.988$).

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Conclusion: Medical students had a low level of compliance with the HBV vaccination program, regardless of their knowledge and awareness of the disease and vaccination. We recommend that programs and campaigns be developed to increase the overall awareness of this disease. We also suggest that a mandatory HBV vaccination program should be implemented to improve the compliance rate among medical students.

Introduction

Hepatitis B virus (HBV) is a virulent pathogen from the family hepadnaviridae, which includes hepatitis B surface antigen (HBsAg), HB core antigen (HBcAg), and HB-e antigen (HBeAg) [1,2]. HBV infection is a well-known cause of acute and chronic hepatitis, which can progress to liver cirrhosis or hepatocellular carcinomas. In the Middle East and South Asia, 2—5% of the entire population is chronically affected, and more than 240 million people have chronic liver disease globally, with an average 600,000 subsequent annual deaths as of July 2013 [3].

HBV infection poses a health risk to healthcare workers who are in close proximity to infected individuals and their bodily fluids. Medical students in tertiary-care academic hospitals are a particularly high-risk and overlooked group in the current literature. Given the high rates of HBV-associated mortality, it is important to study HBV infection in these students.

The Kingdom of Saudi Arabia (KSA) was an HBV-endemic nation until the HBV vaccine was introduced in 1989, following which there was a significant decrease in HBV sero-prevalence, from 7% before the vaccination program to 0.3% in 1997 [4]. Despite this milestone, several Saudi subpopulations, including pregnant women, students in health programs, and health care workers, remain at risk [5,6]. Recent local and regional studies also provide evidence regarding decreased awareness of HBV among several groups in the Saudi community including military personnel [7], primary healthcare physicians [8], and medical students [9,10]; this evidence suggests that compliance with vaccination programs might be significantly related with one's perceptions and misconceptions about HBV and other chronic infectious diseases. A study conducted in King Abdulaziz University in Jeddah, which has a high-risk group who have contact with blood and fluids during dental procedures, reported an 80.5% compliance rate for HBV vaccination; however, more than half (57.5%) of those vaccinated were not screened for HBV antibodies [11]. In this cross-sectional study, we aimed to determine medical students' knowledge of HBV and vaccination as well as their compliance with the vaccination program at King Khalid University Hospital (KKUH), Riyadh, KSA. In addition, we aimed to ascertain the relationships between awareness and preventive behaviors and compliance with vaccine in the medical students.

Methods

Subjects

This cross-sectional study was conducted at the College of Medicine, KKUH, King Saud University (KSU), Riyadh, KSA between October 2013 and March 2014. Random stratified sampling was used to acquire a cohort of 480 medical students (240 men and 240 women), based on a sample size calculation for proportions in a single population using information from a pilot study conducted with 14 medical students in the same college, during which 35.7% of the participants complied with the vaccine program, and 64.3% did not ($p = 0.357$). The calculated sample size was 353, but a sample size of 480 was used for better representation of the population. All second- to fifth-year students were eligible; first-year students were excluded to ensure that all subjects had the chance to undergo the full vaccination program. The institutional review board approved the study design, and each participant provided written consent. All of the participant information was kept confidential, and no incentives were provided for participation.

Data collection and questionnaire

A self-administered questionnaire was distributed to all participants, which included questions regarding the compliance rate and level of awareness of HBV and the vaccination program within two sections. The first section consisted of 12 questions to assess knowledge regarding the disease itself