ORIGINAL ARTICLE

Immunization in Medical Students: Knowledge and Practice

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ABSTRACT

Aim: To determine the knowledge and practice of fourth year medical students about vaccinations recommended by Centers for Disease Control and Prevention (CDC) & World Health Organization (WHO) for medical students and health workers.

Study design: A descriptive cross sectional study was conducted among 4th year MBBS students of Lahore Medical & Dental College (LMDC) in January, 2017.

Methods: A structured questionnaire was used as the study tool to obtain background information of study participants as well as their knowledge and practices regarding recommended vaccination for health care workers and medical students. Data was entered, cleaned and analyzed in SPSS 19. Data was presented in the form of tables and graph and analyzed through descriptive statistics.

Results: Among 126 participants, 55% were female and 45% were male, with the mean age of 22 years. Majority had knowledge about need for mandatory vaccination for Hepatitis B(86%),while nearly half the number of participants(52%) named polio vaccination as necessary. Most students were vaccinated for Hepatitis B (74%), Tetanus (69%) and Polio(59%).According to study participants, the popular sources of information about vaccination for health care workers and medical students were internet (59%) and medical college study courses (52%).

Conclusion: Educating medical students and promoting the importance of vaccination early in a medical student's career is relatively simple and should be integrated into the curriculum. Medical schools should adopt policies that encourage immunization of students, as unvaccinated health care personnel are at increased risk for infection and transmission of vaccine-preventable diseases.

Keywords: immunization knowledge and practice, medical students, source of information.

INTRODUCTION

Vaccination belongs to important and effective ways of infectious diseases prevention. Their effectiveness is proven by regression up-to clearance of many diseases preventable by vaccination. The morbidity and mortality caused by such diseases and there cost of treatment requires us to focus more on their prevention. Despite the proven benefits of immunization, vaccine hesitancy as well as missed-opportunities remain a major public health concerns[1,2,3]. The Centers for Disease Control and Prevention (CDC) have declared immunization as one of the top ten public health achievements[4]. The Advisory Committee on Immunization Practices (ACIP) recommends immunization schedules for adults[5] and updates them regularly. The recommendations are available to both healthcare professionals and the general public. Most of the developed countries have achieved very low rate of vaccine preventable diseases[6,7]. This rate is still very high for under-developing countries[8].

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Vaccinations are particularly important for medical students as medical students come into contact with infectious diseases early on their career. Immunity against vaccine-preventable diseases is therefore vital for medical students to ensure their own protection and also the protection of vulnerable patients[9]. Medical students are future health care providers and importance of their knowledge, positive attitude and high acceptance of interventions like vaccination cannot be undermined. Experience with vaccines before and during medical school may impact these future physicians' recommendations about immunizations to their patients. During their clinical years, medical students may discuss vaccinations as part of their clinical rotations. Studies conducted on medical students in Canada and Germany identified the importance of assessing student knowledge of vaccinations to support the creation of targeted educational interventions to help prepare students for patient interactions related to immunization[10,11].

Previous studies have shown that lack of knowledge in physicians about the efficacy as well as patient eligibility for vaccine can influence the patient decision about getting vaccination[12]. Some studies showed the strong correlation between physicians' knowledge about vaccination and their recommendation to their patients[13,14]. Knowledge about importance of immunization is more necessary

for Health Care professionals as they could convince people to get vaccinated subsequently can improve the government health programs and can make its efficacy higher[15,16]. In addition, some studies reported the potential value of targeted interventions toward medical students (e.g., about influenza vaccination)[17,18].

Given this background, it was decided to conduct a study among medical students about knowledge, and practices regarding immunization. In this regard, a questionnaire is designed including most of the parameters that could define the knowledge and awareness of students. It also provides valuable information about medical student exposure to preventive medicine and their influence on attitudes towards vaccination.

METHODOLOGY

A descriptive cross sectional study was conducted among 4thyear MBBS students of Lahore Medical & Dental College (LMDC) in January, 2017. A structured questionnairewas used as the study tool to obtain background information of students as well as their knowledge and practices regarding recommended vaccination for health care workers and medical students. Data was entered, cleaned and analyzed in SPSS 19. Data was presented in the form of tables and graph and analyzed through descriptive statistics. The study was conducted after approval from LMDC's Institutional Review Board. Informed consent from the study participants was obtained for data collection and publication.

RESULTS

As seen in Table 1, around 66% of students were in the age group 20 to 22 years and 34% were in the age bracket 23-26 years. The mean age of study participants was 22.25 years. Among the students, 55% were female and 45% were male.

Table 2 presents the knowledge and practice of students regarding recommended vaccination for health care workers and medical students.

Majority of the students had knowledge about need for mandatory vaccination for Hepatitis B(86.5%)and polio (52.4%). Nearly half the number of study participants named Tetanus (56%) and Polio (52%) vaccination as necessary for health care workers and medical students. Interestingly, very few students (18%) had information that vaccination against varicella which is also recommended for health care personnel. Most students are found vaccinated (including adult/booster doses)for Hepatitis B (74%), Tetanus (69%), Polio (59%) and TB (56%).

At the time of entry in medical college, the common vaccines received by study participants were against Hepatitis B (71%), Tetanus (25%) and Polio (21%). When inquired, study participants quoted multiple sources of information about vaccination for health care workers (HCW) and medical students (Fig. 1). The most popular sources were internet (59%) and medical college study courses (52%). Some students received such knowledge from medical publications (24%) or other health care personnel (17%).

Table 1: Demographic background of study participants (n=126)

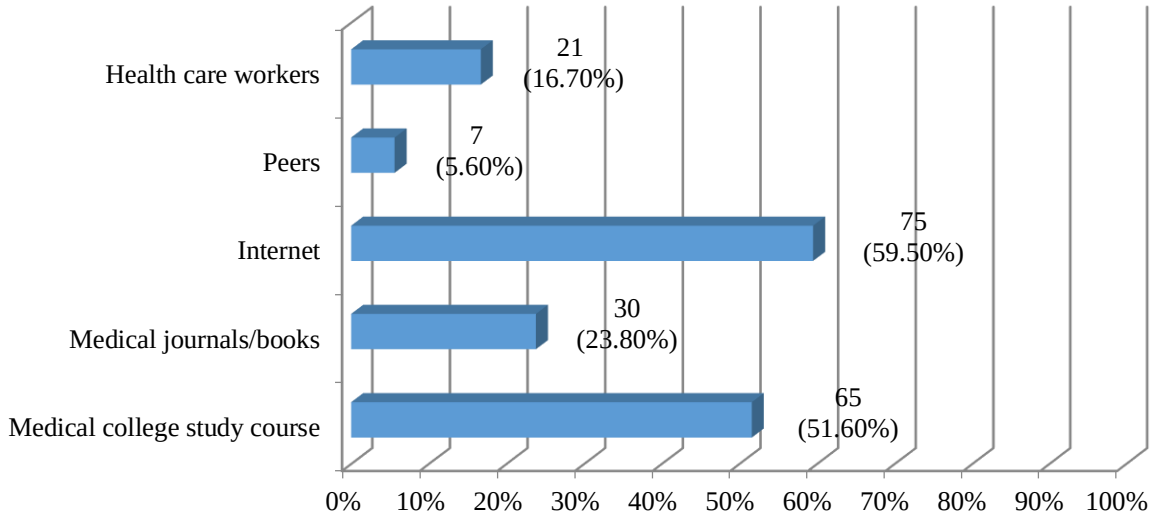
Category	n%
Age group in years	
20-22	83(65.9%)
23-26	43(34.1%)
Gender	
Male	57(45.2%)
Female	69(54.8%)

Table 2**:** CDC& WHO recommended vaccination for health care workers & medical students (n=126)

Disease	Study participants who had knowledge of recommended vaccination	Study participants who received adult or booster dose of recommended vaccination	Mandatory vaccination for study participants at the time of admission in medical college
Hepatitis B	109(*86.5%*)	93(*73.8%*)	89(*70.6%*)
Influenza	45(*35.7%*)	52(*41.3%*)	17(*13.5%*)
Diphtheria	53(*42.1%*)	63(*50.0%*)	10(*7.9%*)
Tetanus	71(*56.3%*)	87(*69.0%*)	32(*25.4%*)
Pertussis	50(*39.7%*)	53(*42.1%*)	05(*04%*)
TB	85(*67.5%*)	71(*56.3%*)	40(*31.%7*)
Polio	66(*52.4%*)	75(*59.5%*)	27(*21.4%*)
MMR	51(*40.4%*)	67(*53.2%*)	09(*7.1%*)
Meningococcal Meningitis	41(*32.5%*)	60(*47.6%*)	06(*4.8%*)
Typhoid	47(*37.3%*)	47(*37.3%*)	13(*10.3%*)
Varicella	23(*18.3%*)	40(*31.7%*)	02(*1.6%*)

*TB= Tuberculosis; MMR= Mumps, Measles & Rubella

Fig. 1: Sources of information about Health Care Workers (HCW) vaccines (n=126)



DISCUSSION

In our assessment of medical students' knowledge and utilization about CDC & WHO recommended vaccination for health care providers (HCP) showed several important factors. One of the findings related to source of information have shown that internet (59%) & medical college study books (52%) play significant roles .Previous study held in UK have also shown internet as the popular information source as well[18].

As far as medical college study books are concerned, medical colleges provide vaccination concepts in basic immunology and then it is scattered throughout the clinical years. Review of current curriculum revealed wide variability in immunization content & evaluation. This finding suggests the importance of creating opportunities for all students to obtain necessary knowledge about vaccination while in medical school, possibly via immunization clinics, to further increase student knowledge levels .Also attempts to minimize the variability of their curriculum would most likely benefit from reinforcement by the development of immunization learning opportunities. The introduction of specific learning opportunities regarding vaccination may effectively enhance student confidence in the quality of their own personal education as well as their ability to educate patients.

For some students, knowledge from medical publications (24%) or advised by other health care personnel (17%) are their common information source about vaccinations. The appearance of fellow health care providers/ colleagues' opinion as a common reason for supporting vaccination may seem less surprising if one assumes that these kind of sources are increasingly trusted relative to other institutions – be it in person or through social media as they may provide welcome contrast to information intended for the general public.

Recent studies suggest that the use of non-physician resources play an important role for the patients to use an alternative immunization schedule, while recommendation from a trust-worthy physicians play a significant role in promoting adherence to Advisory Committee on Immunization Practices (ACIP) schedules[19,20]. Because healthcare provider recommendation is often a key factor in determining whether an adult patient will be vaccinated, it necessary that providers are themselves educated about vaccinations and can counsel their patients about the benefits and the safety of vaccines [21]. Educating medical students about the importance of schedule adherence and better communication could prove particularly important during the pre-clinical and clinical years[22].

One of the findings of our result show that medical students have good basic knowledge of certain vaccine preventable diseases recommended by CDC & WHO for medical personnel's such as Hep B (86.5%)and polio (52.4%) but less knowledge about diseases like varicella(18.3%) influenza(35.7) and pertussis (39.7%).Similar to the previous studies conducted in Pakistan, our results revealed that medical students have sufficient knowledge regarding the Hep B vaccination, however immunization coverage still needs improvement despite the availability of vaccination. [23][24][25] Another result findings showed that students have markedly less

knowledge and utilization of CDC & WHO recommended vaccinations like varicella, pertussis and influenza .Previously conducted studies have also shown quite similar findings about influenza & pertussis vaccination[26].

The present study has a limitation that data was collected from only one class of a private sector medical college.

CONCLUSION

We suggest that educating medical students and promoting the importance of vaccination early in a medical student's career is relatively simple and should be integrated into the curriculum. We also suggest that medical schools should adopt policies on student vaccination and serologic testing that conform to recommendations and should encourage vaccination to students as unvaccinated health care personnel are at increased risk for infection and transmission of vaccine-preventable diseases.

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