Original Article

Impact of training package on medical students' awareness to manage a case of Influenza A (H1N1)

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ABSTRACT

Background and Aims: There was a global influenza A pandemic in the year 2009. For this emerging infectious disease, Government of India in the year 2009 developed a training tool kit to train health care professionals for the pandemic preparedness. We present the impact of standardized training program on awareness of medical students to manage a case of influenza A (H1N1). Materials and Methods: A prepost intervention study was designed and implemented. Before the implementation of intervention package, a baseline guestionnaire was developed and administered to 179 medical students of first, second, and third semester. Training program was delivered in three batches. Each batch was given three days training. After completion of the training program, the questionnaire was re-administered. Results: The mean age of study participants was 19.2 years (SD = ±2.3 years). Ninety-seven (45%) of the participants were female. The mean score in the pre appraisal was 6.3, which increased to 8.7 after the training component (gain index 24 %). There was a significant increase in number of medical students having "very good knowledge" (64%) and "good knowledge" (34%) after the intervention package. Conclusion: There was a significant improvement in the awareness of medical students following a training program. It is recommended that such programs should be held at regular intervals, as measure for preparedness for emerging disease outbreaks.

Key words: H1N1 flu, medical students, pre-post appraisal

INTRODUCTION

Emerging infectious diseases are a global threat. Among them was the emergence of H1N1 influenza in the year 2009.^[1,2] People around the world were taken off guard by its sudden emergence. It spread rapidly around the globe and was

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declared as the "Public Health Emergency of International Concern," under the International Health regulations.^[3,4]

During the first wave of the pandemic, Himachal Pradesh, one of the Northern state of India, reported 17 lab-confirmed cases.^[5] This created a feeling of panic among the medical professionals. From the health care point of view, the challenge was handling the pandemic and preventing the medical staff from acquiring the infection. It seemed pertinent that health care staff have good knowledge of this communicable disease, which was vital to prevent its further spread.^[6,7] Department of Community Medicine, Indira Gandhi Medical College Shimla, undertook the task of training medical students on management of a case of H1N1 influenza. A pre-post study was planned to assess the impact of this training intervention on the awareness of medical students for handling H1N1 influenza cases. Parashar, et al.: Impact of H1N1 training package on medical students' awareness

MATERIALS AND METHODS

Convenience sampling method was used to identify medical students enrolled for the current study. At the time of study in the year 2009, three batches of MBBS students were posted with the department of Community Medicine. Training was imparted to medical students in three batches. The duration of each training session was three days.

Training material was developed by the principal investigator from the "H1N1 training program" available from the Ministry of Health (MOH) website for dealing with pandemic influenza outbreaks.^[8] On the day of training, a CD-containing training materials for dealing with different scenarios of pandemic flu outbreaks were handed over to the participants. Three formal lectures on etiology, management, and prevention were held on day one of the intervention. Next day, a small group question-answer session was held. The group consisted of 12 participants, each which was moderated by a resident doctor from the department. Situational exercises were also discussed with the participants. The third day, a practical demonstration of hygienic hand washing technique was done by a video film.

Prior to delivering this package, a pre-assessment of the study subjects was done using a pre-designed pre-tested questionnaire. The assessment questionnaire included ten objective type questions on epidemiology, etiology, incubation period, symptoms, prevention, and treatment of H1N1 flu. Each question was allocated score of zero or one. Zero for incorrect answer and one mark for correct answer. The final score ranged from 0-10. For the purpose of analysis, this was categorized as very good (9-10), good (7-8), average (5-6), and poor (0-4). Post-intervention data was collected at the end of the departmental posting (4 weeks).

The data was cleaned, coded, and entered in Epi info software for windows (CDC Atlanta). Gain Index was calculated using the formula: Gain Index = (Mean Post-Appraisal Score - Mean Pre-Appraisal Score) X 100. Approval for the study was taken from the ethics committee of IGMC, Shimla.

RESULTS

A total of 179 medical students participated in the study. The mean age was 19.2 years (SD = ± 2.3 years). Ninety-seven (45%) of the participants were female. In the pre-appraisal stage, all the medical students responded correctly about causative agent of swine flu. Nearly half (51.4%) knew the correct incubation period of swine flu organism (H1N1 virus). 93.8% knew that swine flu (H1N1 virus) is transmitted by droplet infection. Nearly three-fourth agreed that swine flu was preventable and treatable. 22.3% knew that phase five is a strong signal that a pandemic is imminent. 69.8% had heard of tamiflu tablets for treatment of swine flu. Only 2.7% were aware of complete correct management of a case of swine flu [Table 1].

In the post-training assessment, in all the questions, the proportions of correct answers ranged from 26% to 100%. Also, the mean score in the pre-appraisal was 6.3, which increased to 8.7 after the training package. Thus, the gain index of the students was 24%. There was a significant increase in the number of medical students having very good (64%) and good (34%) knowledge after the intervention.

DISCUSSION

The emergence of the novel influenza virus H1N1 in 2009 displayed the critical need for training health care professionals to detect and rapidly respond to the pandemic. Amongst them, medical students are an important workforce who should be trained to strengthen the existing public health care delivery in India. Before the training package, our study revealed that medical students had good knowledge about the causative organism of H1N1 influenza and mode of transmission of the virus. Similar to our finding, a study by Subitha *et al.* among nurses in Tertiary Care Institute

Table 1: Pre- and post-intervention knowledge regarding H1N1 influenza
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Question	Pre-assessment	Post-assessment	
	Number of subjects, responded correctly (%)	Number of subjects, responded correctly (%)	
Swine flu is also named as H1N1 flu.	178 (99.4)	179 (100.0)	
The causative organism of swine flu (H1N1 virus)	179 (100)	179 (100.0)	
Incubation period of swine flu organism (H1N1 virus)	92 (51.4)	179 (100.0)	
Swine flu (H1N1 virus) is transmitted by droplet infection.	168 (93.8)	179 (100.0)	
In case of Swine flu (H1N1 virus), period of communicability is more than incubation period.	75 (41.8)	145 (81.0)	
Swine flu is occupational hazard for doctors.	145 (81.0)	132 (73.7)	
Swine flu is preventable and treatable.	135 (75.4)	167 (93.3)	
Phase five is a strong signal that a pandemic is imminent.	40 (22.3)	178 (99.4)	
Treatment of swine flu (H1N1 virus) with tamiflu	125 (69.8)	178 (99.4)	
Correct management of a patient with swine flu is taking a throat swab giving tamiflu medication and home isolation/hospital isolation.	5 (2.7)	48 (26.8)	

Parashar, et al.: Impact of H1N1 training package on medical students' awareness

of South India observed that 95% correctly indicated that it is caused by a virus and 54% were aware of the fact that infection spreads by droplets.^[9] On the other hand, a study by Fatiregun AA *et al.* concluded that majority had no knowledge about the transmission of virus.^[10]

Our intensive training package on H1N1 for medical students went a long way in improving knowledge about this infectious disease. Similar to our finding, an intervention study by Leiba A among hospital personnel's in Israel concluded that in the pre-assessment stage, the knowledge of hospital clinicians regarding avian flu was moderate, which was augmented by educational efforts.^[11] To conclude, medical institution must target medical students on enhancing their awareness level on emerging infectious diseases.

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