ORIGINAL RESEARCH ARTICLE

IMPACT OF HEALTH EDUCATION ON KNOWLEDGE AND ATTITUDE ON PREVENTION OF RABIES AMONG MEDICAL PROFESSIONALS: AN INTERVENTIONAL STUDY

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Abstract

Background: Rabies is a 100% vaccine-preventable disease, the attending physician should have correct knowledge and favorable attitude to provide timely and complete post exposure prophylaxis to prevent rabies, for all exposures to potential rabid animals.

Objectives:1.Toassess the knowledge and attitude of medical professionalson prophylaxis against rabies 2. To find out the effectiveness of health education inimproving their knowledge and attitude.

Methods: Seventy medical professionals were administered pre-test using a structured, selfadministered questionnaire and their knowledge and attitude was assessed. Later, health education was givenusing a 45 minutes video on prophylaxis against rabies. One month later, post–test was administered to the same professionals, using the same questionnaire and the knowledge and attitude at that point of time was assessed. The overall data was analyzed using SPSS version 21.0.The mean knowledge score were compared for pre- and post-test. The descriptive statistics was computed and thestudent paired T – test was used to compare pre & post- test score.

Results: The knowledge and attitude score in pretest was 7.85$\pm$1.95 out of 12 and 8.74$\pm$1.43out of 11 respectively. After health education, the score increased significantly both in knowledge to 9.37$\pm$1.21 and attitude to 9.30$\pm$1.33. A moderate positive correlation was seen between pre-test and post-test score of both knowledge and attitude.

Conclusion: Knowledge and attitude on prophylaxis against rabies improved after health education. Therefore, regular CME's should be conducted for updated knowledge for all medical professionals to achieve elimination ofrabies by 2030.

Key Words: impact, education, knowledge, attitude, prevention of rabies, medical professionals

Introduction

Animal bites are a public health problem, posing an imminent threat of rabies to over 3000 million people worldwide.[1] These exposures occur both in rural and urban areas and has been documented for more than 4000 years.[2]

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In India, animal bites in humans are a public health problem and an estimated 17.4 million animal bites occur annually.[3]In urban areas, the disease is mainly transmitted by dogs, being responsible for 96% of human animal bite cases.[4] Timely and correct post exposure prophylaxis for these animal bite victims is essential to prevent rabies.[5]

Therefore, the attending medical professionals must provide appropriate post exposure prophylaxis (PEP), which includes wound wash with soap/ detergent & water, followed by application of virucidal agents to reduce the viral inoculum at the wound site; complete course of post-exposure vaccination to induce antibodies which prevents the risk of virus entering peripheral nerves and wound infiltration of rabies immunoglobulin (RIG)/ rabies monoclonal antibodies (RMAb) in all category III exposures to neutralize the virus at the wound site.[6] Early and complete PEP, will prevent rabies, even after high risk exposure to potential rabid animals.[7]

Knowledge, attitudes and practices studies have been widely used, around the World for different applications in public health, based on the principle that increasing knowledge will result in changing attitudes and practices to minimize the disease burden.[8] Therefore, the present study assessed the knowledge and attitude of medical professionals regarding prophylaxis against rabies and also the effectiveness of health education inimproving the knowledge and favorable attitude among the medical professionals. The improved knowledge will help them to provide timely, correct and complete post exposure prophylaxis to the exposed for prevention of rabies and ultimately its elimination by 2030.[9]

Materials and Methods

The present study was done after getting the Institutional Ethical committee clearance. The study was conducted in a medical college hospital including both the interns and post graduate students from September 2019 to December 2019.

Seventy medical professionals, aged between 23 and 45 years were enrolled in the study.The informed consent was taken from all the study subjects and all of them were administered pre-test using a structured, self administered questionnaire. The knowledge and attitude was assessed by giving a score of one to each correct answer and zero to wrong answer and the sum of the scores was calculated. The mean score of the subjects for the pretest was determined.

Later, an intervention in the form of health education session was conducted by showing a 45 minutes video on prophylaxis against rabies produced by Rabies in Asia (RIA) foundation and was explained in detail and any questions were answered.Subsequently, one month later, post–test was administered to the same medical professionals, using the same questionnaire and their knowledge and attitude,at that point of time were assessed.

The overall data was analyzed using SPSS version 21.0. The knowledge and attitude score of the study subjects were analyzed and compared for pre- and post-test. The descriptive statistics was computed and thestudent paired T – test was used to compare pre & post- test score and Pearson's correlation co-efficient was used to find out the correlation between pre-test and post-test scores.

Results

The study included seventy medical professionals with the age range of 24-45 years and the mean age of 24.9 $\pm$ 3.2 years. Among them 28 (40%) were males and 42 (60%) were females.

The pre-test knowledge score among them was 7.86$\pm$1.95 out of 12. There was relatively low knowledge onburden of animal bites in India (27.1%) and correct dosage calculation for immunoglobulin requirement (52.9%) for category III exposures. On the contrary, there was relatively good knowledge about the categorization of wound

(80%), number of doses ofvaccine (88.6%), site of vaccine administration (77.1%) and pre exposure prophylaxis (88.6%)(Table 1).

The pre-test attitude score among them was 8.74±1.43 out of 11. There was relatively low attitude towards observation of animals for 10 days (34.3%) and providing PEP to pregnant and lactating mothers (68.6%). There was better attitude with regards to immediate wound wash (92.9%), need for immunoglobulin for all category III exposures (88.6%) and proper advice to the patients (97.1%) (Table 1).

After providing the health education, knowledge and attitude score increased significantly to 9.37+1.21 and 9.30+1.33 respectively ($p < 0.001$) (Table 2). Similarly, there was a significant correlation between pre and post test scores using Pearson's correlation co-efficient ($p < 0.0001$) (Table 3) and a moderate positive correlation was seen between pre and post-test score of both knowledge and attitude (Figure 1& 2).

Discussion

Rabies is a 100% vaccine-preventable disease.[10]Therefore, it is the first zoonosis on the list of neglected diseases targeted for regional and eventually global elimination and is the disease most amenable to control, as the tools for prevention i.e., post exposure prophylaxis is available.[11] Therefore, in rabies endemic country like India, where every animal bite is potentially suspected as a rabid animal bite, the treatment should be started immediately.[12] However, the attending medical professional should have the correct knowledge and favorable attitude to provide proper PEP and save the life of these patients.

In the present study, the knowledge and attitude on correctPEP against rabies was not satisfactory. The pre-test knowledge and attitude score among them was 7.86±1.95 out of 12 and 8.74±1.43 out of 11 respectively. There was relatively low knowledge on burden of animal bites in India (27.1%) and correct dosage calculation for immunoglobulin requirement (52.9%) for category III exposures and low attitude towards observation of animals for 10 days (34.3%) and providing PEP to pregnant and lactating mothers (68.6%).

Likewise, another study from Northern Odisha on practices among Government Ayush medical officers showed that, the knowledge was low regarding application of local antiseptics (58.7%) and site & schedule of anti rabies vaccine(59%).[13] Another study on effectiveness of health education on knowledge and attitude of fresh medical graduates regarding prophylaxis against rabies showed also that, the knowledge and attitude score on prophylaxis against rabies was low in the pre- test with the mean score of 9.44+ 2.21 out of 14 and 6.51 ± 2.63 out of 10 respectively. There was relatively low knowledge on classification of bite wounds (55.9%), type of animals transmitting rabies (66.9%), correct dose of equine rabies immunoglobulin (ERIG) (66.9%) and pre-exposure prophylaxis (PrEP) (68.8%).[14]

A multi-centric study on knowledge, attitude, and practice of rabies prophylaxis among physicians at Indian animal bite clinics showed that, the knowledge of rabies prevention was low, especially regarding classification of bite wounds (55.9%), type of animals transmitting rabies (66.9%), correct dose of equine rabies immunoglobulin (ERIG) (66.9%) and pre-exposure prophylaxis (PrEP) (68.8%). Likewise, the attitude of the respondents towards RIG administration, animals transmitting rabies, observation of suspect animals and route of administration of ARV respectively was 73.4%, 75.3%, 77.9%, and 78.9%.[15]

All these studies showed that, the knowledge and attitude on prevention of rabies is incomplete with respect to various parameters in different studies for the medical professionals, who should have complete knowledge and attitude to provide PEP to the patients.

The present study also showed that, after providing the health education, knowledge and attitude score increased significantly to 9.37+1.21 and 9.30+1.33 respectively ($p < 0.001$). Similarly, there was a significant correlation between pre and post test scores using Pearson's correlation co-efficient ($p < 0.0001$) and a moderate positive correlation was seen between pre and post-test score of both knowledge and attitude.

Similarly, another study on effectiveness of health education on knowledge and attitude of fresh medical graduates regarding prophylaxis against rabies also showed that, there was a significant improvement in the knowledge and attitude among the study subjects after health education, which increased to 9.44 $\pm$ 2.21 and 7.53 $\pm$ 1.1 respectively, which was statistically significant with t-value of 3.182 and $p < 0.001$.[14]A multi-centric study on knowledge, attitude an practice of rabies prophylaxis among physicians at Indian animal bite clinics showed that, there was a moderate positive linear relationship between knowledge & attitude ($r=0.667$, $p < 0.001$).[15]

All the studies showed that, continuous and updated education to all the medical professionals are necessary to improve their knowledge and attitude, which they can put it in practice for providing timely and complete post exposure prophylaxis to all animal bite victims.

Conclusion

Health education on prophylaxis against rabies was effective in improving the knowledge and attitude among the medical professionals.There is a need for re-orientation programs and continuing medical education for medical professionals at regular interval, to understand and follow WHO guidelines and thus provide effective PEP to all the animal bite victims,set in line with Sustainable Development Goals (SDG) 3.3 to end Neglected Tropical Diseases by 2030.[16]

Conflict of Interest Nil

Source of Funding Nil

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Table 1: Pre and post test score of the study subjects (N=70)

Parameters	Mean	S. D.	S. E. Mean
Pre- test knowledge score	7.857	1.951	0.233
Post- test knowledge score	9.371	1.206	0.144
Pre- test Attitude score	8.743	1.431	0.171
Post- test Attitude score	9.300	1.333	0.159

Table 2: Improvement of knowledge and attitude after health education (N = 70)

Parameters	Paired Differences					t	df	Significance (2-tailed)
	Mean	Std. Dev.	S. E. Mean	95% C. I. of the difference				
				Lower	Upper			
Pre-test knowledgescore – Post-test knowledgescore	-1.514	1.816	0.217	-1.947	-1.081	-6.98	69	<0.0001
Pre-test Attitudescore – Post-test Attitudescore	-0.557	1.347	0.161	-0.878	-0.236	-3.46	69	0.001

Table 3 : Correlation between pre-test and post-test scores (N =70)

Parameters	Pearson's Correlation coefficient	Significance
Pre-test knowledge score & Post-test knowledge score	0.417	<0.0001
Pre-test Attitude score & Post-test Attitude score	0.527	<0.0001

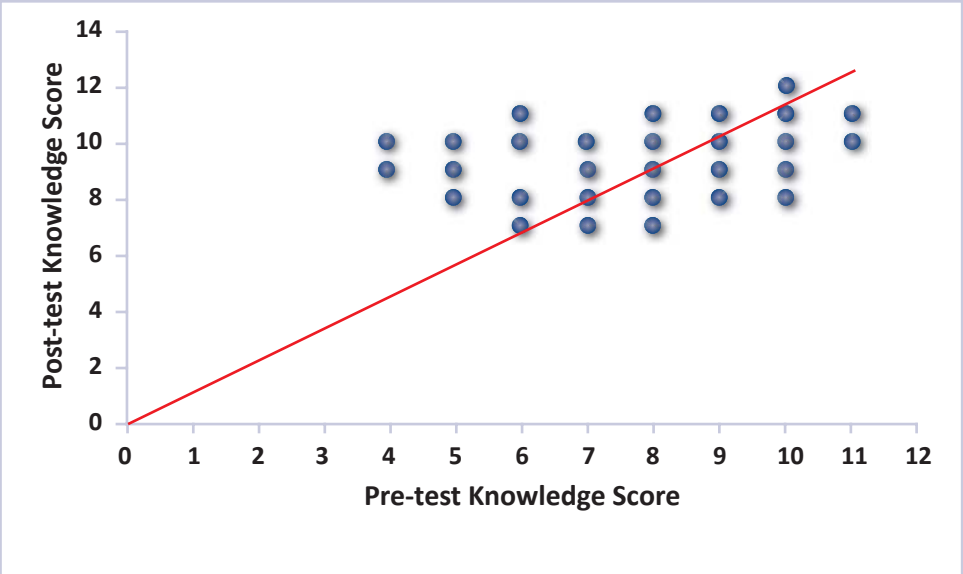

Figure 1 : Correlation betweenpre & post test scores of knowledge

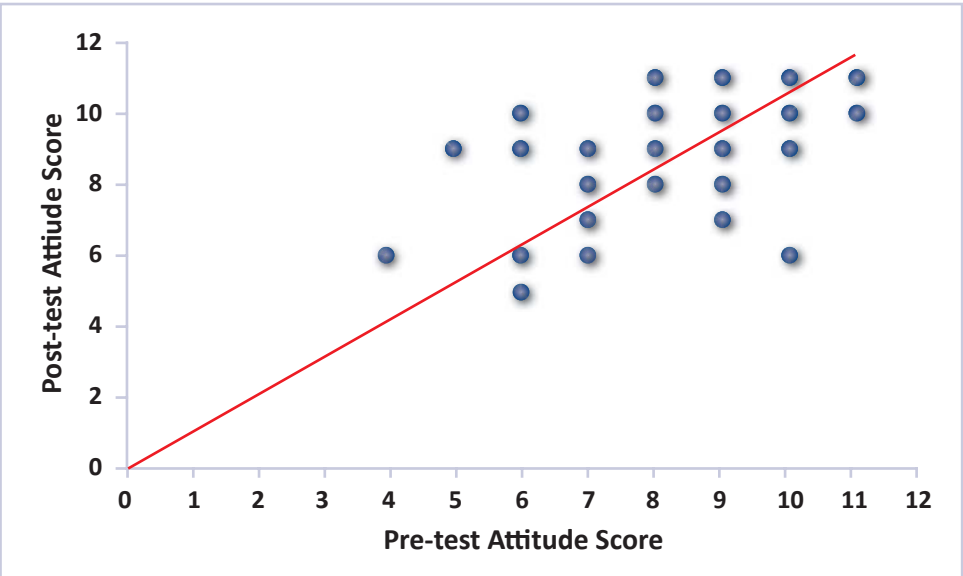

Figure 2 : Correlation between pre & post test scores of attitude