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Original Research Article

Assessment of knowledge regarding rabies and its prevention among the medical students of Government Medical College Rajnandgaon, Chhattisgarh, India

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ABSTRACT

Background: Rabies is a fatal viral zoonotic disease. In India about 20,000 persons die of rabies annually. The aim of present study was to assess the knowledge regarding rabies and its prevention among the medical students.
Methods: A cross-sectional study was conducted among183 medical students of Government Medical College Rajnandgaon, Chhattisgarh during August 2017 to September 2017 using a pre-tested questionnaire. Data was entered and analyzed by using descriptive statistics (frequency and percentage).
Results: It was seen that majority (83.1%) of medical students knew about the viral cause of rabies, 93.4% knew the dog as most common reservoir of rabies and 91.8% knew the most common mode of rabies transmission by bites of rabid animal. About three fourth (74.3%) of medical students knew that hydrophobia as the symptom of rabies in human. About danger sites of animal bite and fatality of rabies was known by 81.4% and 68.8% of medical students, respectively. Only 45.9% of medical students knew the correct incubation period of rabies. Majority (72.7%) of students knew about the immediate wash of the wound with soap and water but only 42.1% knew about antiseptic use. Majority (71%) of students knew the correct site and only 43.7% knew the correct schedule of vaccination. Only 29% of medical students knew about indication of rabies immunoglobulin.
Conclusions: There is a need to organize re-orientation programs and continuing medical education (CME) sessions on rabies and its prevention for medical students, at regular interval.

Keywords: Knowledge, Rabies, Prevention, Medical students

INTRODUCTION

Rabies is a fatal viral zoonotic disease and a serious public health problem. According to World Health Organization (WHO) estimate globally about 55,000 persons die of rabies annually, of which 20,000, that is nearly one-third are from India alone. There are about 15 million animal bites requiring post exposure rabies prophylaxis, the majority by dogs, occur every year in India.[1-4]

According to the WHO, proper post-exposure prophylaxis (PEP) can prevent human rabies completely.[5] There are many myths and false belief associated with wound management, these include application of oils, herbs, and red chilies on wound inflicted by rabid animals, and not washing the wound properly.[6]

Rabies is 100% fatal but 100% preventable disease. Health professional's knowledge is a major determinant of appropriate treatment for patients. Several studies revealed that the knowledge regarding rabies and its

prevention among health care providers was not adequate.[7-10] Medical students are the physicians of the future, so appropriate knowledge regarding rabies and its prevention among them is very important to prevent rabies deaths. Keeping in view the above points, the present study was designed to assess the knowledge regarding rabies and its prevention among the medical students.

METHODS

The present cross-sectional study was conducted among medical students in different years of medical education (1st, 2nd and 3rd prof. MBBS) of Government Medical College Rajnandgaon during August 2017 – September 2017. Informed consent was obtained from each participant. All information regarding rabies and its prevention was recorded in pre designed and pre tested proforma which included demographic information like age, sex, educational status etc. and questions related to epidemiological determinants of rabies, first aid measures and knowledge regarding post- exposure prophylaxis of rabies. Collected data will be entered in Microsoft excel sheet and analyzed by using descriptive statistics (frequency and percentage).

RESULTS

Out of the total 183 medical students interviewed, 53.5% were females. Their mean age was 20.96 years (ranged from 17 years to 29 years). Majority (52.5%) of study population were in the age group of 21 to 25 years. Among all study participants, 23% belong to 1st prof., 37.1% belong to 2nd prof. and 39.9% belong to 3nd prof. of MBBS course.

In the present study, it was found that 83.1% of medical students knew about the viral cause of rabies and 15.3% does not know the causative agent. Majority (93.4%) of medical students knew about dogs as the most common reservoir of rabies but only 2.8% had opined rabies can also be transmitted by animals other than dogs. Majority (91.8%) of medical students knew that the most common mode of transmission of rabies by bites of rabid animal, whereas only 4.4% of medical students were having knowledge regarding modes of transmission other than bite. About three fourth (74.3%) of medical students knew that hydrophobia as a symptom of rabies in human but 3.8% were not aware of symptoms of rabies in human. The correct knowledge about danger sites of animal bite and fatality of rabies was found in 81.4% and 68.8% of medical students, respectively. However, only 45.9% of medical students knew about incubation period of rabies and 24% knew the period of observation to animal after animal bite, correctly (Table 1).

Nearly three fourth (72.7%) of medical students had correct knowledge regarding the immediate wash of the wound with soap and water. However, only 42.1% of medical students had correct knowledge regarding antiseptic use and 85.8% had knowledge regarding suturing. Majority (85.8%) of medical students knew that wound should not cover or dressed. As much as 39.9% of medical students had wrong knowledge that irritants like chili, mud, lime etc. should be applied to the wound.

Table 1: Distribution of medical students according to their knowledge regarding rabies epidemiology (N=183).

Variables	Category	Number	Percentage (%)
Causative agent of rabies	Virus	152	83.1
	Others	03	01.6
	Don't know	28	15.3
Animals transmitting rabies	Dogs	171	93.4
	Animals other than dogs	05	02.8
	Don't know	07	03.8
Modes of transmission of rabies	Bite	168	91.8
	Modes other than bite	08	04.4
	Don't know	07	03.8
Symptoms of rabies in humans	Hydrophobia	136	74.3
	Symptoms other than hydrophobia	40	21.9
	Don't know	07	03.8
Danger sites of animal bite	Correctly knows	149	81.4
	Don't know	34	18.6
Rabies is a fatal disease	Yes	126	68.8
	No	57	31.2
Incubation period of rabies	Correctly knows	84	45.9
	Don't know	99	54.1
Period of observation in animals	Less than 10 days	50	27.3
	More than 10 days	44	24
	Don't know	89	48.6

Table 2: Distribution of medical students according to their knowledge regarding the wound care management following animal bite (N=183).

Variables	Category	Number	Percentage (%)
Wash wound with soap and water	Yes	133	72.7
	No	50	27.3
Apply antiseptic in the wound	Yes	77	42.1
	No	106	57.9
Apply dressing	Yes	19	10.4
	No	164	89.6
Suture the wound	Yes	26	14.2
	No	157	85.8
Apply irritants	Yes	73	39.9
	No	110	60.1

Table 3: Distribution of medical students according to their knowledge regarding post- exposure prophylaxis of rabies (N=183).

Variables	Category	Number	Percentage (%)
Mode of vaccination	IM	93	50.8
	IM/ID	19	10.4
	Don't know	71	38.8
Site of vaccine administration	Knows (deltoid)	38	20.8
	Don't know (gluteus, abdomen)	145	79.2
Schedule of vaccination	Knows	80	43.7
	Don't know	115	62.8
Indication of anti-rabies serum and immunoglobulin	Knows	53	29.0
	Don't know	130	71
Number of days up to which rabies immunoglobulin can be given after administration of anti-rabies vaccine	Up to 7 days	59	32.2
	More than 7 days	24	13.1
	Don't know	100	54.6

Nearly three fourth (71%) of medical students knew the correct site of vaccination. Both intramuscular and intradermal routes of vaccination were known to 10.4% of medical students. The correct schedule of vaccine administration was identified by 43.7% of medical students. Correct knowledge regarding indication of rabies immunoglobulin (RIG) administration was present in 29% of medical students. Only 32.2%of medical students knew correct time (up to 7 days) of giving rabies immunoglobulin after administration of anti-rabies vaccine (Table 3).

DISCUSSION

In present study, 83.1% of medical students knew about the viral cause of rabies which was near to a study carried out by Praveen et al where 88.8% of medical students knew that rabies is caused by virus.[11] In contrast, other study done by Singh et al reported that only 41.1% of MBBS doctors knew that rabies is caused by virus.[12]

Majority (93.4%) of medical students knew that the dog as main reservoir of rabies which was near to other study done by Chopra et al where 96% knew that rabies is transmitted mainly by dogs.[13] Bhalla et al in their study, observed that all the doctors were aware about dog as the major source for spread of rabies in human population.[14]

Only 2.8% of medical students knew about rabies transmission by animals other than dogs in present study which was similar to a study done by Kakkar et al where only 5.5% of medical students correctly stated that rabies is transmitted by animals other than dogs.[15]

Majority (91.8%) of medical students knew that the main mode of transmission of rabies by bites of rabid animal in current study which was near to a study conducted by Praveen et al where 97.7% of medical students knew that rabies is transmitted through bites of an animal.[11] Bhalla et al in their study observed that all the doctors were aware about animal bite as mode of transmission.[14]

Only 4.4% of medical students knew regarding modes of transmission other than bite in present study. In contrast, Bhalla et al in their study, observed that 58% of the doctors were of the view that rabies can also be transmitted by routes other than animal bite.[14]

Regarding symptoms of rabies, 74.3% of medical students knew that the hydrophobia as symptom of rabies in humans in current study which was near to study done by Bhalla et al where 77.1% of study participants knew that hydrophobia is the symptom of rabies.[14] Praveen et al in their study reported that 48% of medical students knew that hydrophobia and aerophobia are the symptoms of rabies in the human beings.[11]

The correct knowledge about fatality of rabies was found in 68.8% of medical students in present study which was near to study done by Praveen et al where 60% of students knew that rabies is 100% fatal.[11] In contrast, Bhalla et al in their study, observed that only 12% of study subjects knew about fatal nature of rabies.[14]

About 46% of medical students knew the correct incubation period of rabies in present study which was near to finding of a study done by Shah et al where this data was 51.7%.[16] In contrast, other study done by Singh A et al reported that 75.5% of MBBS doctors knew the correct incubation period of rabies.[12]

Only 27.3% of medical students knew the correct period of observation to animal after animal bite in present study. In contrast, other studies by Singh et al and Chopra et al reported that 95.5% of MBBS doctors and 69% of staff nurses knew about the correct period of observation (till 10 days) to animal following animal bite.[11,12] These study findings show that there is incomplete understanding of fact about the disease (rabies), among medical students.

The present study revealed that the knowledge on few aspects of epidemiology of rabies like viral cause of rabies, the most common reservoir of rabies as dogs, the most common mode of transmission of rabies by bites of rabid animals, symptoms of rabies in human, danger sites of animal bite and fatality of rabies was high among medical students. But correct knowledge regarding incubation period of rabies and period of observation of animal after bite was poor among medical students.

Regarding the wound care management, 72.7% of medical students had correct knowledge regarding the immediate wash of the wound with soap and water, 42.1% had correct knowledge regarding antiseptic use and 85.8% had correct knowledge regarding suturing in present study. A study done by Praveen et al reported that 66.6% of medical students felt that animal bite wound should be washed with soap and water and 61.1% knew that an antiseptic has to be applied to the animal bite wound.[11] In contrast, Bhalla et al in their study, observed that 19.9% of general practitioners knew that an antiseptic has to be applied to animal bite and 26.0% knew that wound should be washed with soap and water.[14] A previous study done by Choudhary et al found that 77.5% of interns had correct knowledge regarding antiseptic use and 83.8% had correct knowledge regarding suturing.[17] A study conducted by Singh et al reported that 42% of the doctors answered wrongly that the wound should be sutured immediately.[12]

Current study revealed that 10.4% of medical students had incorrect knowledge that animal bite wound should cover or dressed while in another study done by Bhalla et al found that 36% of general practitioners were in favor of bandaging the wound which is contraindicated as this may facilitate entry of the virus.[14]

About 40% of medical students were in favor application of irritants to the wound in present study. In contrast, Bhalla et al in their study observed that 4.6% of general practitioners had incorrect knowledge that chili; limes should be applied after animal bite.[14]

In present study, the correct schedule of vaccine administration was identified by 43.7% of medical students which was higher than a study done by Bhalla et al where only 24% of the total doctors knew the correct schedule of post-exposure prophylaxis.[14] Shah et al in their study, observed that 24% of doctors were aware of correct schedule of anti-rabies vaccine.[16] Other studies by Praveen et al and Singh A et al reported that 16.6% of the students and 39% of the doctors knew about the correct schedule of post-exposure prophylaxis.[11,12]

Regarding route and site of administration of anti-rabies vaccine, 50.8% of medical students knew about intramuscular route of vaccination and 71% were aware of correct site of anti-rabies vaccine administration (Deltoid) in current study while in another study done by Bhalla et al reported that 72% of the total doctors were aware of intramuscular route of vaccination and 44% were aware of correct site of vaccination.[14]

Both intramuscular and intradermal routes of vaccination were known to 10.4% of medical students in current study which was near to a study done by Choudhary et al where 10% of interns knew about both intradermal and intra muscular routes of vaccination.[17] Shah et al in their study, observed that 23.8% of doctors were aware of the correct site of administration of vaccine.[16]

Correct knowledge regarding indication of rabies immunoglobulin (RIG) administration was present in 29% of medical students while another study done by Bhalla et al in Jamnagar city among general practitioners, reported that nobody knew about the serum administration in class III bites.[14]

Only 32.2% of medical students knew correct time (up to 7 days) of giving rabies immunoglobulin after administration of anti-rabies vaccine in present study. Singh A et al in their study observed that 85% of MBBS doctors and 100% of other (BAMS, RMPs etc.) practitioners incorrectly told that rabies immunoglobulin (RIG) can be given after 7 days of after administration of anti-rabies vaccine.[12] This finding shows that there was

lack of knowledge about rabies immunoglobulin (RIG) among medical students.

Thus current study revealed that correct animal bite management and rabies vaccination was specifically lacking among medical students which was consistent with findings of other studies.[12,14,16,17] These knowledge gaps was probably because of the fact that the medical college does not have an animal bite clinic, so most of the undergraduates would not have had an adequate exposure to animal bite management and rabies vaccinations.

CONCLUSION

In order to address the knowledge gaps identified in this study, there is a need to organize re-orientation programs and continuing medical education (CME) sessions for medical students regarding rabies and its prevention, on a regular basis.

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