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Original research article

Assessment of knowledge regarding rabies and its prevention among the interns of a medical college from, Telangana, India

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Abstract

Background: Rabies is a fatal viral zoonotic disease and also a disease of major public health concern. Majority of cases of rabies are due to bites of dogs followed by bites of other animals like the cat, monkeys and pigs. Both animal and human rabies are entirely preventable through vaccination.
Objectives: To evaluate interns' understanding of rabies epidemiology and prevention.
Material & method: This cross-sectional study was conducted after ethical clearance among interns of a tertiary teaching institute for four months, using a pre designed questionnaire.
Results: Majority (98.6%) of them knew dog as the most common reservoir of rabies, only 20.5% and 27.4% knew that rabies could be transmitted by animals other than dogs like cats and bats. Knowledge on modes of transmission was poor. 28.8% of interns knew that rabies is a highly fatal disease after appearance of symptoms. Knowledge regarding the type pf rabies vaccines used now was poor. Immunoglobulins' dose and site were correctly known by half of them. Three fourth of them knew the guidelines for post-exposure prophylaxis.
Conclusion: The current study found that medical interns' understanding of epidemiological determinants was insufficient.
Keywords: Dog-Bite, Rabies and Vaccination

Introduction

Rabies is a fatal viral zoonotic disease and also a disease of major public health concern. Majority of cases of rabies are due to bites of dogs followed by bites of other animals like the cat, cow, monkey, horses, pigs and camels etc. [1]. Both animal and human rabies are entirely preventable through vaccination, and the first efficacious rabies vaccines for human use were developed in the 19th century. However, in the 21st century, the virus is still enzootic in many regions of the world, and human rabies remains one of the most serious and distressing diseases and an important threat to public health.
Rabies causes approximately 59,000 deaths globally per year and associated loss of 3.7 million DALYs. Majority of deaths occur in Asia and Africa. Children under 15 years of age account for approximately 40% of deaths. India accounts for most deaths in Asia (59.9%) and globally (35%) [2].
Health professionals' knowledge is most important determinant for appropriate treatment for rabies patients. Several studies done specially in developing countries revealed that the knowledge regarding rabies among health care professionals was not adequate [3-6]. Hence this study was undertaken to assess the knowledge of interns on rabies epidemiology and its prevention among future medical professionals who are likely to deal patients of animal exposure independently in future.

Aim: To assess the knowledge of epidemiology, clinical features and management of rabies among medical interns and to determine their knowledge about safe vaccine strategies for rabies.

Material and Method

Study Area: The study was conducted among subjects of a tertiary teaching institute.

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Study Design: Cross-sectional study.

Study Period: September 2021 to December 2021.

Ethical Approval: Obtained prior to initiation of the study from the institutional ethics committee

Study Population: All willing intern, regardless of gender, was included in the study.

Data Collection Methodology: A comprehensive questionnaire covering a variety of rabies-related topics, including epidemiology, clinical characteristics, and prevention, was given to study participants. A Google Form was used to administer the survey.

Data Analysis: SPSS version 26, a statistical tool for the social sciences, was used to analyse the data. Tables and graphs are used to show the data, which is expressed as percentages in categories. The study mostly used descriptive statistics.

Results

With a response rate of 53%, we had 79.5% female respondents and 84.9% resided in urban areas. In the present study, it was found that all of the interns knew the viral cause of rabies. Majority (98.6%) of them knew dog as the most common reservoir of rabies, only 20.5% and 27.4% knew that rabies could be transmitted by animals other than dogs like cats and bats. Knowledge on modes of transmission other than bite of rabid animal- like licks on intact skin and exposure to urine, sweat was known only to few (**Figure 1**).

Majority (94.5%) knew hydrophobia as symptom of rabies in human but other symptoms of rabies such as pain at wound site and paralysis were known by 47.9% and 38.4% only respectively. Usual incubation period of 7 days to 3 months was known to 90.4%. Only 28.8% of interns knew that rabies is a highly fatal disease after appearance of symptoms. 52% of interns didn't know the period of observation in case of bite by a domestic animal (**Table 1**).

Knowledge regarding the type of rabies vaccines used now was poor. Immunoglobulins' dose and site were correctly known by half of them. 3/4th of them knew the guidelines for post-exposure prophylaxis. Around 43% of them knew that there is no contraindication for rabies vaccine administration. Schedule of pre-exposure prophylaxis was known by 45% of the interns (**Figure 2 & 3**).

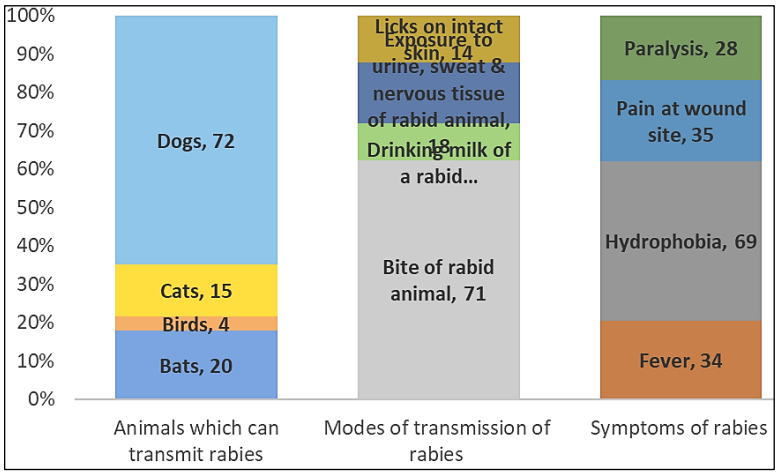

Fig 1: Column chart showing knowledge domain of various parameters

Table 1: Knowledge of various factors among medical interns

S. No.	Characteristics	Frequency	Percentage
1.	Causative agent-virus	73	100%
2.	Animals transmitting rabies Dogs	72	98.6%
	Cats	15	20.5%
	Birds	4	5.5%
	Bats	20	27.4%
3.	Modes of transmission of rabies Bite of rabid animal	71	97.3%
	Exposure to urine, sweat, tissue of rabid animal	18	24.7%
	Drinking milk of rabid animal	11	15.1%
	Licks on intact skin	14	19.2%
4.	Symptoms of rabies		

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	Hydrophobia	69	94.5%
	Pain at wound site	35	47.9%
	Fever	34	46.6%
	Paralysis	28	38.4%
5.	Usual incubation period (7 days-3 months)	66	90.4%
6.	Average fatality rate (90-100%)	21	28.8%
7.	Period of observation in case of bite by domestic animal (7-10 days)	35	47.9%

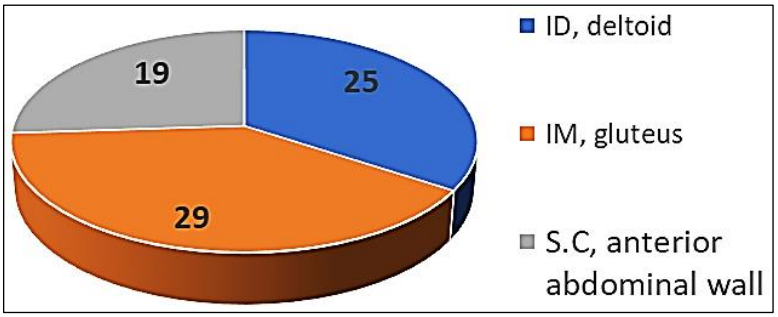

Fig 2: Pie-chart showing responses for Most preferred mode and site of Rabies vaccine administration in adults

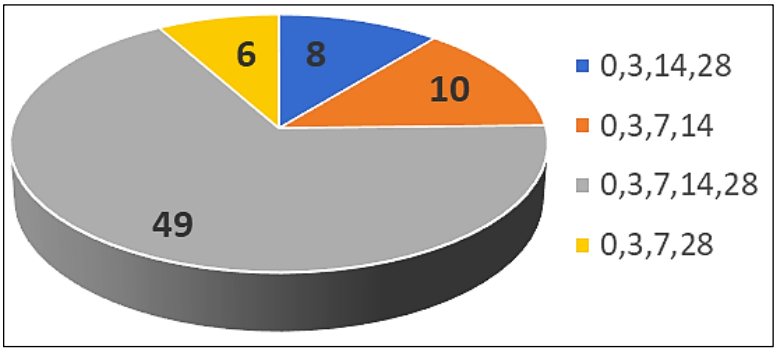

Fig 3: Pie-chart showing responses for Schedule of intramuscular vaccination according to Essens regimen

Discussion

In the present study majority of participants were female 79.5% and resided in urban area. Almost all the interns knew that rabies is transmitted by virus which was similar to study done by Giri PA *et al.* [7] and Mishra *et al.* [8] where 92.1% and 94% of interns knew the viral cause of rabies. Majority of interns (98.6%) knew dog as most common animal which can transmit rabies while only 20.5% and 27.4% knew that rabies could be transmitted by other animals also like cat and bat which was similar to study done by Shivani *et al.* [9] where only 34.1% interns knew that other animals such as cat, fox, and monkey. Study done in Jamnagar reported 24% awareness in doctors about other animal reservoirs [10].

Modes of transmission of rabies as bite of rabid animal was known by 97% of interns which was similar to study done by Sarkar *et al.* [10], and Sashikantha *et al.* [11] Praveen *et al.* [12] among medical students revealed that 74%, 98% and 97% had correct knowledge regarding mode of transmission of rabies respectively. Symptoms of rabies were known to 94.5% of them. Study done by Sarkar *et al.* [10] revealed that 83% of the interns knew the signs and symptoms correctly, whereas study done by Praveen *et al.* [12] revealed 48% knew about symptoms of rabies correctly respectively.

Correct incubation period was known to 90% of interns which was similar to study done by Giri *et al.* [7] where 75% interns knew correct incubation period where as study done by Mishra *et al.* [8] revealed only 27% of interns knew the correct incubation period.

Categorization of wound was correctly known to 30, 45, 58 of them which was similar to Shivani *et al.* [9] where 57.6% of the interns knew the correct categorisation of wound. In our study almost all the interns had the knowledge regarding the immediate of washing of the wound, 87% had correctly answered the application of antiseptic over the wound, 79% had correct knowledge regarding suturing the wound.

Most preferred mode and site of rabies vaccine administration as intradermal and deltoid were known to 34.2% of them which was similar to studies done by Shashikantha *et al.* [11] Sarkar *et al.* [10] were found 30%, 10% and 35% respectively. In contrast study done by Giri *et al.* [7] showed 68.4% interns knew that route of administration of vaccination could be either intra-muscular or intra-dermal.

67.1% and 47.9% of interns in the study knew the correct schedule (intra-muscular and intradermal) which was similar to study done by Tiwari *et al.* [3] where 43.7% knew the correct intramuscular schedule. Whereas study done by Bhalla *et al.* [5] found that 39% of general practitioners knew the correct schedule.

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In the current study half of the interns knew the correct site and time up to which rabies immunoglobulin can be given which was different from studies done by Bhalla *et al*. [5]. and Tiwari *et al*. [3] where 25% and 32.2% knew the correct time up to which immunoglobulin can be given. Correct schedule of pre-exposure prophylaxis was correctly known to 45% of the interns which was more than study done by Bhalla *et al*. [5] (34% knew correct schedule) of people were not aware of pre-exposure prophylaxis.

Conclusion

The current investigation found that medical interns' understanding of epidemiological determinants was insufficient. The majority of undergraduates would not have sufficient exposure to animal bite management because most medical schools lack an animal bite clinic, which contributes to the knowledge gaps. Since interns will eventually become doctors, their lack of understanding might potentially jeopardize the lives of people seeking treatment in medical facilities while also placing an additional strain on medical professionals by requiring needless post-exposure prophylaxis. When posting internships, emphasis should be placed on ARV clinics and the need of the rabies vaccine. The limitation in the study was, the findings cannot be generalized as it was conducted among interns of a medical institute.

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Conflict of interest: Nil.

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