

Assessment of Knowledge and Practices on Rabies among Veterinary Staff in Cuttack City, Odisha

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Abstract

Background: Veterinarians and their staff are placed in the high-risk group of acquiring rabies due to the frequent exposure to rabid animals, experiences as a part of their routine job schedule. Research focusing on rabies control among veterinarians is very limited. This study attempts to assess the knowledge and practices regarding rabies prevention and control among veterinary staff of Cuttack city.

Objectives

1. To assess the knowledge on rabies among veterinary staff
2. To know the extent of pre- and post-exposure vaccination coverage against rabies among veterinary staff.

Methodology: A cross-sectional survey was done among the government veterinary staff in Cuttack city from February to April, 2016. A pretested and predesigned questionnaire was used to collect the data by interviewing method.

Results: Most of the surveyed veterinary individuals were aware of the disease rabies. Bite and saliva contact of rabid animals with open wound was known as mode of rabies transmission to 82.5% of the respondents. 42.5% of the study subjects used three or more personal protective measures while handling the animals. Of total 40 respondents, only 22.5% had taken full pre-exposure vaccination against rabies.

Conclusion: Despite being a risk group of acquiring rabies because of their job, the total veterinary staff currently vaccinated fully either by pre or post-exposure with anti-rabies vaccine is very low. Proper education and awareness need to be provided to all the veterinary staff regarding seeking dog bite management and the need to take pre-exposure vaccine.

Keywords: Rabies, Veterinary staff, Knowledge on rabies

Introduction

Rabies is one of the most serious zoonotic diseases. It is almost 100% fatal once the clinical signs develop.^{1,2} Although rabies is highly fatal but it can be preventable.

The rabies virus is a lyssa virus that can cause acute inflammation of the brain. The virus is usually transmitted through the saliva of an infected animal, normally via a bite. Less often, it can be transmitted through an open wound or a mucous membrane such as those in the mouth,

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nasal cavity or eyes. Though most animals are susceptible to rabies infection, many are 'dead end' hosts who are unlikely to transmit the infection. Such 'dead end' hosts include humans and most herbivores: cattle, sheep, goats and horses. All warm-blooded animals are capable of transmitting rabies. In human population, most of the deaths due to rabies are caused by bites from rabid dogs. It is estimated that approximately 55,000 people die due to rabies per year around the world. The burden of the disease is largely borne by Africa and Asia as the vast majority of deaths occur in these two countries. The annual estimated number of dog bites in India is 17.4 million which cause an estimated 18,000–20,000 human rabies cases per year.³ Rabies is widely distributed across the globe and is present in all continents apart from Antarctica and some regions which are mainly islands and peninsulas or due to successful eradication programs and enforcement of rigorous quarantine regulations. To reduce dog bites and deaths due to rabies, a multidisciplinary approach is needed with effective measures:⁴

- Control by effective formulation and dissemination of guidelines.⁵
- Proper pre-exposure vaccination, proper wound management, animal observation and post-exposure vaccination strategies are required.⁶
- Vaccination (75–80%) and control of dog population can break the transmission of rabies virus.⁷

Veterinarians and their staff are placed in the high-risk group of acquiring rabies due to the frequent exposure to rabid animals, experiences as a part of their routine job schedule. Research focusing on rabies prevention and control among veterinarians is very limited, especially in Odisha.

The present study was carried out with the objective to assess the knowledge on rabies prevention, and its control among the veterinary staff of Cuttack city and to know the extent of pre- and post-exposure vaccination coverage against rabies among them.

Materials and Methods

Place of study: Urban area of Cuttack city, Odisha

Period of study: February–April 2016

Study design

Cross-sectional survey among the veterinary staff working in government settings in Cuttack city, Odisha. A pretested and predesigned questionnaire was used to collect the data by interviewing method.

Study setting

All the government veterinary institutions, namely,

Director's office of veterinary, chief district veterinary office, frozen semen bank and two dispensaries present in Cuttack city.

Study population

All veterinary surgeons (VS) and livestock inspectors (LIs) working in the study setting who gave consent, were taken as study population.

Institution	Staffing Pattern	Total
Director's office of veterinary	10 VS, 5 LI	15
CDVO	5 VS, 4 LI	9
Frozen semen bank	6 VS, 2 LI	8
Buxibazar dispensary	2 VS, 3 LI	5
Nayabazar dispensary	2 VS, 1 LI	3

Data entry and Analysis

Data thus collected were entered and analyzed by using the software SPSS 21 version. Chi-square tests were used to assess statistical significance. P values of <0.05 were considered for statistical significance.

Results

Among the study subjects, majority (82.5%) were male. Most of the study population (52.5%) was between the age group of 30–40 years. With regard to the type of employment, 67.5% were veterinary surgeons and 32.5% were live stock inspectors.

The mean age of the study population was 44.4 years with a standard deviation of 8.53. Among the study population the minimum job experience was 9 years and maximum job experience was 33 years with a standard deviation of 8.39.

The coverage of the pre-exposure vaccination among the staff was 30% including both the complete and incomplete vaccination. The persons who took a complete dose of pre-exposure vaccination came up to 22.5%, and the non-vaccinated group was 70%.

Among 12 persons who had taken the pre-exposure vaccination, 66.6% said that they got the information from literature whereas the rest of them said they gained the knowledge from other sources like media (16.7%) or institutions (16.7%).

Of the 28 persons who did not take the vaccine for pre-exposure prophylaxis against rabies, 46.4% felt that there was no need to take the vaccine, 42.9% said they had no specific reason for not taking the vaccination and only 10.7% had no knowledge regarding the pre-exposure vaccine.

Almost half of the subjects or more had knowledge about each of the three methods recommended by WHO after

a dog bite exposure. Regarding post-exposure vaccination, 67.5% subjects said ≥ 4 doses of vaccine should be given but 32.5% said < 4 doses of vaccine are to be used. Among all the study population, 11(27.5%) persons had at least one incident of dog bite during their work life. After the exposure, 81.8% took the post-exposure vaccinations whereas the rest were unvaccinated. Immunoglobulin was given to five persons. Among the 11 persons who were vaccinated post-bite, 5 (45.4%) of the subjects took the post-exposure vaccination on the same day, 4(36.4%) on day 1 whereas the rest 2 (18.2%) took the vaccination on the second day.

For full pre-exposure vaccination, only those who had taken three or more vaccines were taken into account. In the analysis, of the four predictor variables which were cross tabulated and tested using chi-square test, ever bitten by a dog was the variable which turned out to be statistically significant in the bivariate analysis.

Table 1. Demographic Characteristics of the Study Population

Characteristics		Frequency Number(%)
Age (in years)	30-40	21(52.5)
	41-50	6(15)
	51-60	13(32.5)
Sex	Male	33(82.5)
	Female	7(17.5)
Job	VS	25(67.5)
	LI	15(32.5)
Job experience	< 16 years	15(37.5)
	16-30 years	14(35)
	31-45 years	11(27.5)

Table 2. Knowledge on Post-Exposure Prophylaxis and Post-Exposure Vaccination (n=40)

Characteristics		Frequency N(%)
Post-bite management knowledge	Wound washing	25(62.5)
	Watching dog	23(57.5)
	Post-exposure vaccination	40(100)
Post-exposure vaccination knowledge	≥ 4 doses	27(67.5)
	< 4 doses	13(32.5)

Table 3. Association of the Predictor Variables with the Full Pre-exposure Vaccination

Characteristics		Full Pre-exposure Vaccination		X ² Value	p-Value
		No	Yes		
Job	VS	19	6	0.08	0.76
	LI	12	3		
Sex	Male	26	7	0.17	0.67
	Female	5	2		
Use of personal protective measures	< 3 measures	20	3	2.77	0.09
	≥ 3 measures	11	6		
Ever bitten	Yes	11	0	4.4	0.03
	No	20	9		

Discussion

The present study showed that only 22.5% of the veterinary staff in Cuttack city had ever taken a complete dose of the pre-exposure vaccine against rabies. A study conducted by James showed a similar finding with only 16.7% veterinary staff taken complete pre-exposure vaccine.⁸ Another study done in 1998 on pre-exposure vaccination coverage among high-risk groups revealed that there was a serious gap between the vaccinated and non-vaccinated groups.⁹

Studies conducted in Karachi and India have already established that there was an inadequacy in the knowledge regarding rabies post-exposure prophylaxis in the general community as well among patients and health workers.^{10,11}

In the present study, 52.5% of the study subjects had an adequate knowledge of all the post-exposure prophylactic measures envisaged by the WHO.

In the present study, 42.5% of the veterinary staff used three or more personal protective measures while handling the animal. Shirangi et al. in a study in Australian female veterinarians has stated that large proportions of the subjects did not use adequate protective measures.¹²

More than one-fourth (27.5%) of the study veterinary staff had history of bites while handling animals in our study.

Conclusion

Complete pre-exposure vaccination status among the studied veterinary staff in Cuttack city was very low. The risk perception for rabies from any animal exposure was very poor as majority said there was no need to take a pre-exposure vaccination. There were 18.2% veterinary staff who did not take any vaccination even after having an animal bite, indicating a gap in the awareness among them regarding post-exposure prophylaxis against rabies. Awareness regarding use of all available personal protective measures should be created among these high-risk groups while handling animal cases. Pre-exposure vaccination among this staff should be made mandatory and may be offered by the government set up.

Conflict of Interest: None

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