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Short Communication

Rabies menace and control – An insight into knowledge, attitude and practices

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ABSTRACT

Background: There are very few community-based epidemiological studies on knowledge, attitude and practice about rabies prevention and control. This cross-sectional study was undertaken to determine the same in an urban slum area.

Methods: A random sample of 200 people was selected from an urban slum area. A pre-tested pro-forma was used to collect the data.

Result: All study participants had knowledge of rabies transmission by dog bite compared to only 23% having knowledge about its transmission by scratches and licks. Only 40% of the participants were aware that the disease would cause fatal illness. As a first aid measure after dog bite, 66% of the participants responded that they would wash the wound with water, 24% said that they would visit a doctor and the rest responded that either they would do nothing (3%) or would adopt some unconventional methods/religious practices (7%) to prevent the development of rabies. 55.5% of participants were aware about the role of vaccine in preventing rabies.

Conclusion: The level of awareness about rabies and its control measures is not high. The attitudes and practices of the respondents reflect the lack of IEC activities, inaccessibility of treatment facilities and the lack of services that would enable community participation in rabies control.

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Introduction

Rabies is an enzootic and epizootic disease of worldwide importance. Globally, 2 persons die every hour due to rabies. 40% of people who are bitten by suspect rabid animals are children under the age of 15 years.¹ Rabies in dogs is the source of 99% of human infection and poses a potential threat to more than 330 crore people.² At the global level, more than 150 lakh people receive rabies prophylaxis annually, the majority of who live in China and India. It is

estimated that in the absence of post-exposure prophylaxis, about 3,27,000 persons would die from rabies in Asia and Africa each year.³

Roughly 36% of the world's rabies deaths occur in India each year. Most animal bites in India (91.5%) are by dogs, of which about 60% are strays and 40% pets. Sudarshan⁴ reported that the annual number of person-days lost because of animal bites is 380 lakh, and the cost of post-bite treatment is about INR 140 crore in India. The dogs fall into 4 categories namely pets (restricted and supervised); family dogs (partially

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restricted, wholly dependent); community dogs (unrestricted, partially dependent); and feral dogs (unrestricted, independent). Most dogs in India would fall into the last 3 categories.⁵ Estimates about the population of dogs in India vary, but it may be as high as 250 lakh. Vaccinating such a large number of dogs is not just a technical challenge, but also a test of community spirit and ultimately political will.⁶ Until fairly recently, this kind of commitment was lacking in India, where 20,000 of an estimated global annual 55,000 rabies deaths occur. One of the reasons the disease has been neglected is because the deaths are scattered and never amount to the kind of a crisis that get other infectious and non-infectious disease epidemics the top billing.⁶

There are many myths, false beliefs and inappropriate practices associated with wound management after a dog bite. These include application of oils, herbs, and red chillies on the wounds inflicted by rabid animals. More faith in indigenous medicines that are of unproven efficacy is highlighted in other studies.⁷

Even though the methods for the prevention of rabies are available in India, the awareness regarding these is lacking.⁸ As such, very few studies are available in the literature that assess the people's awareness regarding rabies. This study was undertaken to add to the existing limited information on knowledge, attitude, and practices regarding rabies, its prevention and control in an urban setting among slum dwellers.

Material and methods

A community-based cross-sectional study was conducted in slum area of Wanawadi, Pune from July 2011 to September 2011. Sample size was calculated, taking into consideration major study variables. The highest sample size was obtained for awareness about anti-rabies vaccine⁹ and it came out to be 185. A total of 200 families were surveyed. Simple random method was adopted in selecting families. The head of the household or in his/her absence any other adult member of the family was interviewed. If the selected house was found locked on 3 successive visits, the adjacent household was interviewed.

A structured questionnaire was prepared, translated into Hindi and Marathi and back translated and was pre-tested. The questions covered various domains of knowledge, attitude and practices related to rabies. The data was analyzed by using EPI-INFO package version 3.5.3. Chi-square test was used to analyze the relationship between education and awareness about role of vaccine in preventing rabies in Table 1.

Results

The study participants ($N = 200$) comprised of 126 (63%) men and 74 (37%) women. Literacy, as defined in Census operations, is the ability to read and write with understanding in any language.¹⁰ The literacy rate among the study participants was 86.5%.

All study participants had knowledge as regards transmission of rabies by dog bite, compared to only 23% having knowledge about its transmission by scratches and licks of a rabid dog. In response to the question on transmission of rabies by bite of animals other than dog, 17% responded for cat and 12% monkey.

Only 5.5% study participants knew about bites on danger sites such as head, neck, face, and genitals.

In response to symptoms of rabies in humans, 10% of the participants mentioned fear for water, 30% responded that there is a fatal illness, 13.5% responded that wound infection occurs and a large percentage of participants did not know any of the symptoms of rabies as given in Fig. 1. When queried for availability of a cure for rabies, 10% were sure that it can be cured by treatment.

On question to symptoms of rabies in dog 35% of individuals mentioned that the dog becomes irritable. 7% mentioned that skin lesions occur in the dog as one of the symptoms.

As a first aid measure after a dog bite, 66% of the participants brought out that they would wash the wound with water, 24% said they would visit a doctor and the rest responded that they would either do nothing (3%) or adopt some unconventional practices (7%) to prevent the development of rabies (Fig. 2).

55.5% of study participants were aware about the role of vaccine in preventing rabies. The relationship between education and awareness about role of vaccine in preventing rabies is highly significant ($p < 0.000001$) as shown in Table 1. Awareness level increases as the education level increases. 15.8% of the study participants knew that 5 injections have to be taken on being bitten by a dog.

Approximately 25% of the sample population was pet owners and 52% of them had vaccinated their pets. 49% of the study participants had given the history of dog bite in anyone of the family member. Among them 73.5% approached healthcare facility, 7.1% took unconventional treatment and 19.4% did nothing.

For control measures 62.5% participants suggested that the dogs should be caught and taken away from their locality by Municipal Corporation and 16.5% suggested that stray dogs should be sterilized.

Table 1 – Relationship between education and awareness about role of vaccine in preventing rabies.

Awareness about vaccine	Illiterate (%)	Primary school (%)	Middle school (%)	High school (%)	Intermediate/post high school (%)	Graduate and above (%)	Total (%)
Yes	0 (0)	0 (0)	28 (14)	38 (19)	26 (13)	19 (9.5)	111 (55.5)
No	27 (13.5)	21 (10.5)	28 (14)	0 (0)	13 (6.5)	0 (0)	89 (44.5)
Total	27 (13.5)	21 (10.5)	56 (28)	38 (19)	39 (19.5)	19 (9.5)	200 (100)

$\chi^2 = 71.64$; degree of freedom = 1; $p < 0.000001$.

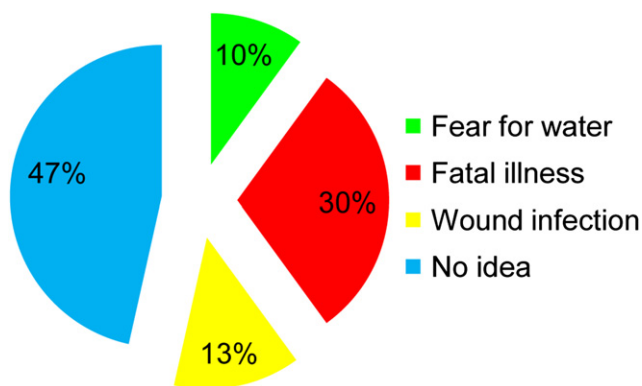


Fig. 1 – Knowledge regarding symptoms of rabies in human.

Discussion

Singh and Choudhary⁹ noted that 98.6% knew that rabies is transmitted by rabid dog bite. This knowledge varies according to their educational status. This is comparable to the finding in our study as all of the individuals knew about rabies transmission by dog bite but only 23% knew about its transmission by scratches and licks.

Cleaveland et al¹¹ mentioned that 70% of the dog population should be vaccinated to achieve herd immunity and sufficient vaccination coverage to prevent transmission of rabies virus. Vaccine coverage rate in our study among pet dogs was only 50%.

Sekhon et al⁷ found that 31% of study participants washed their wounds with either soap and water or only water and 15% followed unconventional practices. The findings are comparable to the present study.

World Health Organization (WHO) recommends wound cleansing and immunization within a few hours after contact with a suspect rabid animal can prevent the onset of rabies and death.¹

In present study 55.5% participants are aware about the role of vaccine in preventing rabies, which is much lesser than the findings of Singh and Choudhary who found that 86.6% people are aware about anti-rabies vaccine.⁹

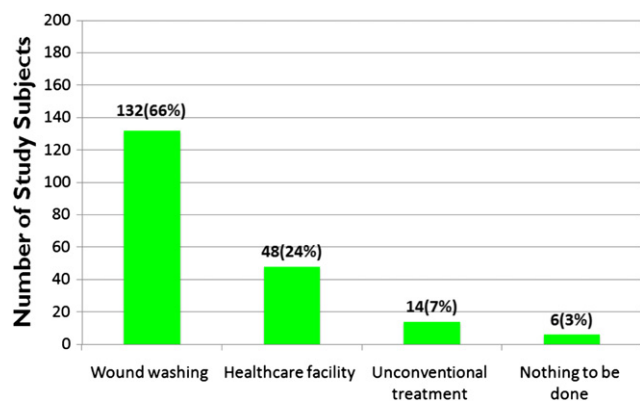


Fig. 2 – Knowledge regarding first aid measure when dog bites.

Conclusion

It is evident that there is a large gap in people’s knowledge, attitude, and practices about rabies which needs to be addressed through measures like establishing a national rabies control programme (as recommended by WHO¹²); improve rabies surveillance and data collection; promote prompt and proper care of dog bite wounds; and active community participation. The 2 most important things to be done are to increase awareness about rabies and implementing catch–neuter–vaccinate–release principle through local health authority.¹³ Awareness about rabies can be increased by undertaking IEC activities in print and electronic media and by undertaking targeted awareness campaigns. This is achievable by initiatives both by the government and non-government organizations.

Intellectual contributions of authors

Study concept: M Prakash, G.Venkatesh.
Drafting and manuscript: M Prakash, Col VK Bhatti.
Statistical analysis: M Prakash, Col VK Bhatti.
Study supervision: Col VK Bhatti.

Conflicts of interest

All authors have none to declare.

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Journal Scan

G. Wittwer, W.L. Adeyemo, J. Beinemann, P. Juergens, Evaluation of risk of injury to the inferior alveolar nerve with classical sagittal split osteotomy technique and proposed alternative surgical techniques using computer-assisted surgery, *Int. J. Oral Maxillofac. Surg.* 41 (2012) 79–86.

Introduction

Damage to inferior alveolar nerve leading to paresthesia of the lower lip after sagittal split ramus osteotomy (SSRO) is a common complication. This clinical paper on orthognathic surgery evaluated the course of inferior alveolar nerve in the bony canal at three different positions using computerized tomography (CT) which includes point X1 (Coronal CT slices 3 mm anterior of the mandibular foramen), point X2 (Coronal CT slice at the transition of the ramus to mandibular body) and point X3 (Coronal CT slice in the middle of the distance of the position X2 to distal of second molar).

Relevance & conclusion

The authors have assessed the risk of injury to the nerve during classical SSRO based on the proximity of the nerve to the outer cortex and have proposed an alternate surgical technique using computer assisted surgery. CT data from 102 (right mandible:left mandible = 52:50) mandibular rami were evaluated from 52 patients. At each CT slice (positions X1, X2, X3) the distance between the mandibular canal and the inner surface of the cortical bone was measured and registered as a possible neurosensory compromising proximity if it was less than 1 mm or if the mandibular canal comes into contact with the external cortical bone. Proximity at the lingual cortex was not considered a neurosensory compromising proximity. Each mandibular canal was allocated to one of the four neurosensory risk groups in relation to the classic procedure of the SSRO (no risk group 39%, proximity at one position 16%, proximities at two positions 2%, proximities at all positions 19%). Using commercial software package for virtual surgical planning, alternative surgical osteotomies were tested. Based on this categorization authors hypothesized that the classical SSRO can be applied only in 39% cases and osteotomy cuts have to be modified in rest of the 69% cases to prevent neurosensory deficit following SSRO. Two modifications were given: modified classical osteotomy (MCO) and complete individualized osteotomy (CIO). They have suggested the readers to refer the web version of the article to clearly interpret the buccal and lingual segments of the mandible in MCO, CIO.

Strong points

This study has proposed computer assisted navigation to perform individualized osteotomy to negate the chances of damage to inferior alveolar nerve while performing SSRO.

Lacunae

The facilities for proposed computer assisted navigation using 3-D CT are expensive and may not be available at every maxillofacial surgical centre. In prognathic mandible reference points to avoid nerve injury are mostly static with least aberration. Modified technique has to be justified in selecting the patient (advancement/set back) or otherwise exposing such a large population to extra radiation should be kept in mind where time tested standard reference points are existing in literature.

Recommendations

The protocol followed by the author can be incorporated at our service hospitals where 3-D CT facilities are available.

FURTHER READING

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