



Misconceptions and Myths Regarding Dog Bite In Urban Area of Kancheepuram District, Tamil Nadu

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ABSTRACT

Background: Dogs are the main source of human rabies, contributing up to 99% of all rabies transmissions to humans. Though dog bite injuries to humans in India have received much attention, there are certain misconceptions.

Methodology: Cross-sectional study was carried out in urban field practice area of Anakaputhur in Kancheepuram district. By purposive sampling method, 285 outpatients visiting the urban health centre during a period of two months were included as study participants. SPSS version 20 used for entering and analysis of data.

Result: Among the study participants, 36.4 % participants believed that vaccine is given in the stomach, many of them followed certain food restrictions among which 65.2% participants avoided non – vegetarian after dog bite. Around 25.6% participants believed rabies is caused only by dogs and 17 % participants were not aware that rabies is caused by animals other than dog. Less than half of them only responded that they will complete the course of anti-rabies vaccine, if there are no symptoms.

Conclusion: According to this study myths and misconception regarding dog bite were found to be highly prevalent. These beliefs and practices are of no use and can be harmful at times.

Key words: Rabies, Food restriction, Vaccine

INTRODUCTION

Rabies is viral zoonotic infection and it is the one of the most important fatal among the zoonotic diseases. Dogs are the main source of human rabies, contributing up to 99% of all rabies transmissions to humans¹. Worldwide it has been found that about 59,000 deaths every year are due to rabies, among which bite of rabid dogs are the major reason for human rabies death. Rabies is caused by a virus called Lyassavirus family type1. Clinically, rabies has two forms, that is furious rabies and Paralytic rabies. – Furious rabies is characterized by hyperactivity and hallucinations whereas paralytic rabies is characterized by paralysis and coma. It results in

progressive and fatal inflammation of the brain and spinal cord. It is a neglected tropical disease primarily transmitted through warm-blooded animals e.g. dogs, cats, jackals etc¹.

India is a diverse country with cultural and social backgrounds, with broad range of misconceptions and myths associated to various diseases. Especially there is a huge set of misconception and myths linked to dog bite and rabies which do not have any scientific evidences but still people have great belief in it. Many efforts have been taken to change these misbeliefs but often it does not work out due to intransigent behaviour¹.

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Though dog bite injuries to humans in India have received much attention, there are certain misconceptions. One such belief is that vaccine/injection is given in the stomach that is around umbilicus and certain food restrictions followed in some cultures with no scientific background.¹ Still many people have an idea that post exposure prophylaxis consist of sequence of extreme hurting injections around the umbilicus, such beliefs restrict and prevent people from seeking proper medical care. A lot of people follow numerous inappropriate practices for the management of dog bite. Some apply turmeric/salt/chilli powder over the wound for better healing without any aseptic measures which can lead to high risk of developing other infections²⁻⁴

Commonly the people after dog bite restrict consuming non- vegetarian foods, among vegetarians they restrict the consumption of ginger and garlic. Healthy food is a good practice but few of them even avoid the consumption of fruits instead they prefer consuming milk and maida based breads during gastroenteritis.^{2,5}

With this above framework, the present study has been done to know the myths and misconception in relation to dog bite and rabies in urban area of Kancheepuram district, Tamil Nadu.

MATERIALS AND METHODOLOGY

Study design, study area and study population:

This is a cross-sectional study conducted in an urban field practice area of Anakaputhur district in Kancheepuram district, Tamil Nadu. The total population in the study area is about 48050 (males 24158, females 23892). The study population composed of outpatients visiting the urban health centre in Anakaputhur who were willing to participate and eligible people in the age group of 18 to 70 years of age.

Study period: The study period was carried out from December 2019 to April 2020.

Sample size and sample technique: The sample size was estimated based on the prevalence of taboos (p=42%) related to dog bite found in a study done by Chinnaian S, et al.² Based on this the sample size was estimated using the formula sample size $n = z^2pq/L^2$, where p was 42%, q was (1-p), and L was relative precision. The estimated sample size was 259, and considering a 10% non-response, the sample size was 259. This has been rounded off to 285 as the sample size for this study.

Sampling method and study tool: All the outpatients visiting the urban health center in Anakaputhur and who are 18years above and staying minimum of 6 months in Anakaputhur from December 2019 to April 2020 and gave consent were included as study participants. The study participants were selected by Purposive sampling method and questioned on OP basis. A pre- tested semi- structured

questionnaire was used to elicit relevant information regarding dog bite. Questionnaire was pilot tested in the neighbouring primary care center among 50 patients who were visiting to the as outpatient department. Based on the responses and feedback received, the questionnaire was modified and was used in this study. Questionnaire was designed to gain the information regarding the socio demographic details of the study participants, occupation and information related to knowledge and practices regarding myths and misconceptions related to management following dog bite and rabies.

Data analysis method: Data was entered in Microsoft excel sheet and Statistical analysis done using SPSS 20.0 version using descriptive statistics. The outcome variables of the study are all categorical variables and expressed as proportions. Categorical outcomes were compared between study groups using Chi square test. P value < 0.05 was considered statistically significant. Data was analyzed by using coGuide software, V.1.03. (1),1.BDSS Corp. Released 2020. coGuide Statistics software, Version 1.0, India: BDSS corp.

Ethical clearance and informed consent: The study was approved by the ethical committee of Sree Balaji Medical College and Hospital, Chrompet. The participants were briefed about the purpose of the study and informed consent was obtained from the all the study participants before the interview.

RESULT

The study done to assess the misconceptions and myths regarding dog bite and rabies yielded interesting results which are presented below in the form of tables.

The age group of the study population was 18 -70 years among which more than half of them were in the age group of 18 to 30years. In this study group males' participants were about 52.63% and female participants were about 47.37% (Table 1).

Table 1: Socio-demographic details of the study participants. (n=285)

Variable	Frequency (%)
Age	
18-30	180 (63.16)
31-50	88 (30.88)
50-70	17 (5.96)
Sex	
Male	150 (52.63)
Female	135 (47.37)
Socio-economic status	
class I	145 (50.88)
class II	114 (40)
class III	13 (4.56)
Class IV	8 (2.81)
Class V	5 (1.75)

Table 2: Variables related to myths and misconception among study participants (n=285)

Variable	Frequency (%)
Can transmission of rabies possible by any other animal bite rather than dog?	
Yes	162 (56.84)
No	73 (25.62)
Don't know	50 (17.54)
Do you think non-vegetarian food has to be avoided after a dog bite/rabies?	
Yes	186 (65.26)
No	99 (34.74)
Rabies vaccine is given in the stomach/around the umbilicus.	
Yes	104 (36.49)
No	96 (33.68)
Don't know	85 (29.83)
Is it necessary to complete the course of ARV (Anti-rabies vaccine), if there is no symptoms?	
Yes	137 (48.07)
No	43 (15.09)
Don't know	105 (36.84)
Is it essential to wash with soap water after a dog bite?	
Yes	195 (68.42)
No	37 (12.98)
Don't know	53 (18.6)
Do you avoid ginger/garlic after a dog bite/rabies?	
Yes	83 (29.12)
No	202 (70.88)
Is ARV(Antirabies vaccine) required for dog scratches?	
Yes	121 (42.46)
No	76 (26.67)
Don't know	88 (30.87)
Myths and Misconception	
Yes	171 (60)
No	114 (40)

Table 3: Post dog bite measures adopted among study participants (N=285)

Parameter	Summary
Antiseptic Dettol	117(41.05%)
Turmeric	91(31.93%)
Apply nothing	28(9.82%)
Chilli powder	31(10.88%)
Soil/rust	18(6.32%)

Table 4: Comparison of demographics parameter between myths and misconceptions (N=285)

Parameter	Myths and Misconception	
	Yes (≥ 4)	No (< 4)
Age Group		
18-30 (N=180)	160 (88.89%)	20 (11.11%)
31-50 (N=88)	11 (12.5%)	77 (87.5%)
50-70 (N=17)	0 (0%)	17 (100%)
Gender		
Male (N=150)	150 (100%)	0 (0%)
Female (N=135)	21 (15.56%)	114 (84.44%)
Socio Economic Status#		
Class I (N=145)	88 (60.69%)	57 (39.31%)
Class II(N=114)	66 (57.89%)	48 (42.11%)
Class III (N=13)	7 (53.85%)	6 (46.15%)
Class IV (N=8)	6 (75%)	2 (25%)
Class V (N=5)	4 (80%)	1 (20%)

*No statistical test was applied- due to 0 subjects in the cells; #Chisquare value 2.028, P value 0.731

According to their monthly income the participants were categorised using BG Prasad scale to identify their socio-economic status among which Half of the study participants came under class I socio-economic status followed by class II and class III socio economic status and only less than 10% participants were under socio economic class IV and V (Table1).

Among the study participants, 36.4 % participants believed that vaccine is given in the stomach/ around the umbilicus. Many of them followed certain food restrictions among which 65.2% participants avoided non - vegetarian after dog bite and 29.12% avoided ginger, garlic after a dog bite. Around 25.6% participants believed rabies is caused only by dogs and 17 % participants were not aware that rabies is caused by animals other than dog. Less than half of them only responded that they will complete the course of anti-rabies vaccine, if there are no symptoms. Around 68% participants preferred washing the wound with soap/water, and less than half of them preferred applying Dettol/antiseptic over the dog bite wound and only 10% responded that they will apply nothing over the wound, the remaining participants preferred applying other things like turmeric/chilli powder/rust/soil. 171(60%) were believed myths and misconception. (Table- 2)

Among the study population, 117(41.05%) were used antiseptic Dettol, 91(31.93%) were used turmeric, 28(9.82%) were apply nothing, 31(10.88%) were used chilli powder and 18(6.32%) were used soil or rust. (Table 3)

Out of 180 participants in 18 to 30 years age group, 160 (88.89%) were believed myths and misconception. Out of 88 participants in 31 to 50 years of age group, 11 (12.5%) were believed myths and misconception. Out of 150 participants in male, 150 (100%) were believed myths and misconception. Out of 135 participants in female, 21 (15.56%) were believed myths and misconception. The difference in socio economic status between the myths and misconception is found to be insignificant with a P- value of 0.731, with majority of 88 (60.69%) participants were class I. (Table 4)

DISCUSSION

Worldwide rabies is an important epizootic and enzootic disease.⁶ Many of the deaths occurred by dog bite/ rabies are due to the negligence and unawareness about the importance of primary management of dog bite and rabies⁷. Many researches and studies say that children are under higher risk of getting bitten by dogs because many of the children prefer playing in outdoor, that may lead the way to high contact with dogs and there is a increased chance of dog bite on the face which is category 3 bite according to WHO, hence leading to rabies followed by death^{8,9}.

In the present study it was found that majority of the participants in the age group 18-30years believed

myths and misconceptions compared to other age groups. Further all males believed in the myths and misconceptions. However, there was no difference in the socio economic status between the myths and misconception (P- value of 0.731) in this study, but with majority of 88 (60.69%) participants were class I. However a study by Sivagurunathan C et al⁹ found age, gender, and education showed a statistical association with the knowledge of the participants.

About 56.86% participants were aware that transmission of rabies is possible even by few other animals bite rather than dog, while 25.62% believed that rabies is transmitted only by dog bite and the remaining 17.54% had no idea regarding the transmission of rabies. Around 36.49% still believed that rabies vaccine is given in the stomach or around the umbilicus, 29.83 % responded they don't know about the vaccination site and 33.68% knew vaccine is not given in the stomach or around the umbilicus. This suggests that the knowledge of this study group regarding the older practice of vaccination site is quite higher when compared to the earlier study done by Joice YS, Singh Z, Datta SS in Tamil Nadu where 59.3% study participants believed that the site of vaccination is abdominal area¹⁰. But the knowledge regarding washing the wound with soap water after a dog bite was quite lesser when compared that same study done by Joice YS, Singh Z, Datta SS in Tamil Nadu¹⁰. In the survey done in 2004, it has been reported that only 39.5% of bite victims washed the dog bite wounds with soap and water.

Various findings for washing the dog bite wound with soap and water and application of antiseptics were reported in a survey by Rozario et al.¹¹

Around 65.26% responded that non- vegetarian food has to be avoided after dog bite, even some of the participants avoid ginger and garlic after dog bite / rabies as they believe it might worsen the condition without any scientific evidence. (Tab-2). The lack of knowledge regarding misconception of food restriction followed after animal bite was quite similar to previous other studies^{2,12}.

Only 48% responded that it necessary to complete the course of ARV (Anti-rabies vaccine), even if there is no symptoms. Around 26.6% of study participants believed that rabies vaccine is not required for animal scratches. It is observed that around 68% participants knew washing the wound with soap/water after an animal bite, (Tab-2) and less than half of them preferred applying Dettol/antiseptic over the dog bite wound, the remaining participants preferred applying other things like turmeric/chilli powder/rust/soil. Although WHO recommendation suggests that immediate wound washing with soap water is a good practice, traditional remedies like applying turmeric, chilli powder, soil/rust are also used as a pre-treatment measure which was the similar result obtained by other previous studies¹³.

Bhargava et al also reported that there was various practices like chilli paste application over the wound

which has been followed as a traditional remedy by the community.¹⁴

These differences with respect to the use of local applications used as first aid for dog bite may be due to the different cultural background, education level and different myths and perceptions of the community.

This study observed the misconceptions, improper practices followed in the study community might lead them in breaking the barrier for management of animal bite/ rabies. Thus, knowledge and awareness regarding dog bite are essential in prevention and control of rabies¹⁵.

CONCLUSION

Even though many studies have been done on myths and misconception regarding dog bite/ rabies it has been found that the prevalence of myths and misconception regarding dog bite higher. Among this study group upper class participants were higher but still they believe in certain misconception like food restriction after dog bite which was found to be highly prevalent from this study. These beliefs and practices are of no use and can be harmful at times. Hence this study suggests that misbeliefs and misconception did prevalent in high- and middle-class people even though they are accessed to the education and health facts on dog bites. This might be attributed to customs and traditions followed through generations even in this class of population.

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