



A STUDY ON SOCIO DEMOGRAPHIC VARIABLES OF ANIMAL BITE CASES AND FACTORS ASSOCIATED WITH DELAY IN POST EXPOSURE PROPHYLAXIS IN JEWAR BLOCK , UTTAR PRADESH

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Abstract

Introduction : Rabies is a highly fatal illness but preventable . Since the virus enters the human body through bite or scratch it is imperative to remove as much saliva as possible immediately by proper washing of wound with soap and water **Objectives :** a)To identify the epidemiological pattern of victims of animal bites ; b)To find out the factors affecting delay of post exposure prophylaxis among victims of animal bites . **Results :-** 18% of the participants had delay in post exposure prophylaxis . Illiteracy and type of exposure were found to have a statistically significant association with delay in post exposure prophylaxis . **Conclusion :-** By addressing knowledge gaps and promoting healthy behaviour , we can mitigate the risks associated with animal bites and improve health outcome of affected individuals .

Introduction

Animal attacks are still a major health issue worldwide. Animal bite is the main source of transmission of rabies to humans, which has not yet been controlled in most parts of the world . Rabies is commonly transmitted by dogs and cats (97%) followed by wild animals such as mongoose , foxes , jackals and wild dogs . The presence of unvaccinated free roaming dogs among human settlements also contributes significantly to the high incidence of Rabies in India . [1] In low income countries, several studies have demonstrated that dogs account for 76-94% of animal-bite injuries, resulting in a high prevalence of rabies and higher fatality rates due to poor access to anti-rabies post-exposure treatment. [2,3] According to the Center for Disease Control (CDC), around 4.5 million people worldwide are bitten by animals every year, which often require post-exposure prophylaxis [4]

Although Rabies affects people of all age groups , children are the most vulnerable which constitutes 40% of people exposed to dog bites in Rabies endemic areas . As per the National Rabies Control Program, 6644 clinically suspected Human Rabies cases and deaths have been reported from 2012 to 2020 as per the reports received from the states and UTs. [1]

Rabies is a highly fatal illness but preventable . Since the virus enters the human body through bite or scratch it is imperative to remove as much saliva as possible immediately by proper washing of wound with soap and water . [5] Jewar PHC located in Gautam Buddh nagar district has been reporting a high number of animal bite cases on a regular basis . Therefore , a study needs to be undertaken for ascertaining the socio demographic variables and factors associated with delay in care seeking behaviour

Study objectives

1. To identify the epidemiological pattern of victims of animal bites
2. To find out the factors affecting delay of post exposure prophylaxis among victims of animal bites

MATERIALS AND METHODS

A cross sectional study was conducted at Jewar PHC , Gautam Budh Nagar district which is also designated Rural Health and Training centre under Noida International institute of Medical Sciences. The study was conducted from October to November 2023 . The monthly OPD report was used to calculate the sample size . A total of approximately 2400 cases were reported in the first six months of 2023 (i.e, from January to June 2023) . Therefore , based on that , the approximate number of cases in a two month period turns out to be 800 out of which 50% of the estimated sample size was purposively considered for the study . Therefore , the final sample size in the study was 400 . Data was collected in a structured and pre tested questionnaire after obtaining informed consent from the participants or assent in case of children . All cases of animal bites who reported at OPD from 1st October till 30th November , 2023 were included in the study . The patients who did not consent to participate were excluded .

The data collected on various aspects of the study were entered in Microsoft Office excel and analysed using SPSS version 26 . The data were presented in the form of proportion. Chi square test was used to find the association between different variables . A statistically significant association was considered if the two sided p value was less than 0.05 (P value < 0.05) .

Operational definitions :-

Categories of contact with suspected rabid animal [5]

Category I – touching or feeding animals , licks on intact skin

Category II – nibbling of uncovered skin , minor scratches or abrasions without bleeding

Category III – single or multiple transdermal bites or scratches , licks on broken skin ; contamination of mucous membrane with saliva from licks

Delay in post exposure prophylaxis – A delay in post exposure prophylaxis has been defined as seeking treatment in a health facility more than 48 hrs after contact with a suspected rabid animal [15]

Results

Table 1 : Distribution of animal bite cases according to socio demographic variables

Socio demographic variables	Number (Percentage)
Age	
<5 yrs	12 (3%)
5-15 yrs	112 (28%)
16- 30 yrs	116 (29%)
31 – 45 yrs	96 (24%)
46 – 60 yrs	52 (13%)
>60 yrs	12 (3%)
Gender	
Male	245 (61.25%)
Female	155 (38.75%)
Education	
Illiterate	148 (37%)
Primary school	49 (12.25%)
Middle school	24(6%)
High school	65 (16.25%)
Intermediate	70 (17.5%)
Graduate	44 (11%)
Occupation	
Agriculture	56 (14%)
Business	80 (20%)
Housewife	23 (5.75%)
Service	165 (41.25%)
Student	44 (11%)
Unemployed	32 (8%)
Religion	
Hindu	223 (55.75%)
Muslim	147 (36.75%)
Others	30 (7.5%)
Socio economic status	
Lower	86 (21.5%)
Upper lower	130 (32.5%)
Lower Middle	150 (37.5%)
Upper middle	34 (8.5%)
Upper	Nil
Type of animal	
Dog	312 (78%)
Cat	13 (3.25%)
Monkey	75 (18.75%)
Time of biting	
6 am – 12 pm	136 (34%)
12 pm – 6 pm	204 (51%)
6 pm – 6 am	60 (15%)
Type of exposure	
Scratch without bleeding	184 (44%)
Single transdermal bite	144 (36%)
Multiple transdermal bite	72 (18%)
Site of injury	
Upper limb	128 (32%)
Lower limb	244 (61%)
Head and neck	8 (2%)
Multiple sites	20 (5%)
Time of seeking treatment	
<48 hrs	318 (82%)

>48 hrs	72 (18%)
Did you take first aid treatment	
Yes	332 (83%)
No	68 (17%)
First aid treatment	
Only water	79 (24%)
Soap and water	112 (34%)
Chilli powder	141 (42%)

During study period , 400 cases were studied out of which 245 were males (61.25%) and 155 were females (38.75%) . 29% of cases were seen from the age group of 16 to 30 years , 37% were illiterate and 56 % belonged to Hindu religion. In terms of socio economic status , 37.5% belonged to lower middle class . 78% of the cases were bitten by a dog followed by approximately 19% attack from monkey . 18% of the cases had delay in getting post exposure prophylaxis as per our definition . 83% had taken any kind of first aid treatment whereas the majority of them applied chilli powder (42%)

Table 2 : Association between different variables and delay in post exposure prophylaxis

Gender	Less than 48 hrs	More than 48 hrs	P value
Male	200	47	0.461
Female	128	25	
Age group			0.09
<5 yrs	9	3	
5- 15 yrs	83	29	
16 – 30 yrs	103	13	
31 – 45 yrs	81	15	
46 – 60 yrs	43	9	
>60 yrs	9	3	
Education			0.00 *
Illiterate	99	49	
Literate	229	23	
Socio economic status			0.068
Lower	40	46	
Upper lower	70	60	
Lower middle	57	93	
Upper middle	15	19	
Religion			0.644
Hindu	180	43	
Muslim	124	23	
Others	24	6	
Type of exposure			0.003 *
Scratch	138	46	
Single transdermal bite	128	16	
Multiple transdermal bite	62	10	

*statistically significant

Table 2 depicts the association between different variables and delay in post exposure prophylaxis . Among the different variables , a statistically significant association has been found between education and type of exposure with delay in post exposure prophylaxis .

DISCUSSION

The present study showed males were more vulnerable to dog bites with 61% of them comprising the total number of cases . This may be due to the fact that men were more likely to go out of their home for work and get involved in outdoor activities . Similar findings were observed by Marathe et al [6] , Bhise et al[7] and Minhas et al [8] showing 76% , 69% and 68% males respectively . Most of the victims also belonged to the age group of 16 – 30 years (29%) followed by age group of 5-15 years

(28%) . This highlights the increased encounters with dogs and other animals found among the productive age group as they venture out for their schools and work and also the children being more prone to animal bite because of their playful and mischievous disposition. This is comparable to other study findings by Pattanayak et al [9] which showed increased cases among productive age group . Bhise et al [7] also showed a similar observation with 21% cases among both the age group of 21 – 30 years and 11 -20 years . In the present study , most of the victims were found to be service holders (41%) followed by business owners and agricultural workers . This is possibly because of their increased exposure to outdoor environment due to their job that increases the likelihood of encounters with animals . In contrast , Marathe et al [6] found 31% of the victims to be agricultural workers whereas Minhas et al [8] found majority were students . Most of the bites have occurred in the afternoon and evening hours which correlates with the findings by Marathe et al [6] , whereas Bhise et al [7] found majority of the bites being reported from 6 pm to 12 midnight . Because of a large number of stray dog population found in the rural area of Jewar, majority had bites caused by dogs (78%) followed by 19% bites from monkey . This finding was concordant with that of Marathe et al [6] , Patel et al [10] and Sudarshan et al [11] . Apart from that , our study also witnessed a significant proportion of monkey bites because of a significant number of the animal inhabiting the rural area of Jewar and its neighbourhood . In contrast , Marathe et al [6] reported only 0.8% of monkey bites . Majority of the cases reported injury in lower limbs (61%) and this finding was in agreement with other study like Pattanayak et al [9] , Patel et al [10] and Sangeetha et al [12] . 83% of the cases have taken any kind of first aid treatment with majority resorting to the application of chilli powder on the wound . The myth which is commonly prevalent among the local inhabitants can hopefully be mitigated by awareness campaign . Sahu et al [13] found 43% cases applied bitter gourd and turmeric paste on their wounds . 18% of the animal bite cases met the criteria of delay in post exposure prophylaxis in the present study which matched with the finding by Sharma et al [14] which reported 22% delay . Khazaei et al [15] in Iran also found a similar observation with a delay among 19% cases . Our study found statistically significant association between illiteracy and delay in post exposure prophylaxis . This strongly shows lack of awareness about rabies , barriers in access to information and poor health seeking behaviour among illiterate individuals . We also found a significant association between type of exposure and delay . This is probably due to lack of awareness that mild injury like scratch may not require immediate treatment and thereby the delay was seen . This crucial finding was corroborated by Gaffari et al [16] which showed a significant delay in post exposure prophylaxis among victims with minor injury from animal bites .

Conclusion

Animal bites pose significant health risks due to rabies and bacterial infections . Prompt and appropriate wound management is crucial to prevent complications . However there exists a subset of individuals with poor knowledge about wound management . Myths and misconceptions may lead individuals to adopt ineffective or harmful practices further worsening their condition . Addressing this issue requires a multifaceted approach involving education and community outreach to empower individuals with knowledge about proper wound management . By addressing knowledge gaps and promoting healthy behaviours , we can mitigate the risks associated with animal bites and improve health outcome of affected individuals .

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