International Journal of Biomedical Research
ISSN: 0976-9633 (Online); 2455-0566 (Print)
Journal DOI: https://dx.doi.org/10.7439/ijbr
CODEN: IJBRFA

Original Research Article

Profile of animal bite cases attending a Pune Municipal Corporation Dispensary

Omair Aziz Wani*, J. S. Gothankar, Arunesh Kumar and Sachin Gupta

Department of Community Medicine, Bharati Vidyapeeth University Medical College, Pune-411043 India

QR Code

***Correspondence Info:**
Dr. Omair Aziz Wani
P.G. student,
Department of Community Medicine,
Bharati Vidyapeeth University Medical College, Pune-411043 India

***Article History:**
Received: 27/04/2016
Revised: 14/02/2017
Accepted: 14/02/2017
DOI: https://dx.doi.org/10.7439/ijbr.v8i2.3231

Abstract

Introduction: Rabies is common in most parts of India. The incidence of animal bite in India is 17.4 per 1000 population. Although cases of animal bite constitute a problem of considerable magnitude, not all the victims seek medical help. There is a need to create awareness regarding epidemiology and at-home management of animal bites among general community.
Objective: To determine profile of animal bite cases attending a Pune Municipal Corporation Dispensary.
Material and Methods: A Cross Sectional Study carried out in one of the randomly selected Pune Municipal Corporation Dispensaries. A total of 300 animal bite cases were included as study subjects. Data collection was done by structured interview technique and was entered into Microsoft Excel Sheet for statistical analysis.
Results: Of total 300 animal bite cases, 73% were males. Most of the cases belonged to age group of 16-30 years. Common biting animal was dog (81%). 64% biting animals were stray. Lower limbs was most common site(58%) of animal bite and majority (73%) had category III bite. 49% cases lacked disease knowledge and were suggested by others to seek treatment.
Conclusion: About one third of cases seek health care facility after one day of bite. Few cases practiced non recommended substances on biting site. Although Rabies is a highly preventable disease by virtue of post expose prophylaxis and immediate wound treatment, there is a big gap in knowledge and practice among the general public with regards to the same.

Keywords: Animal bite, behavior, demographic profile, rabies.

1. Introduction

Rabies is an acute viral disease that causes fatal encephalomyelitis. The virus is found in wild and some domestic animals, and is transmitted to other animals and to humans through their saliva [1]. The incidence of animal bite in India is 17.4 per 1000 population. A person is bitten every 2 second, and someone dies of Rabies every 30 minutes [2]. In India dogs are responsible for majority of the animal bite cases [3]. Each year approximately 1.1 to 1.5 million people are receiving post exposure prophylactic treatment [4]. In spite of receiving post exposure prophylaxis, there are reported treatment failures resulting in human Rabies. There are various reasons for the same like; a) Delay in starting treatment due to late reporting of patients. b) No proper wound wash. c) Application of irritants to bite wounds. d) Suturing of animal bite wounds without local infiltration of RIG (Rabies Immunoglobulin) [3]. Cases of animal bite constitute a problem of considerable magnitude, not all the victims of animal bite seek medical help. There are many myths and false beliefs associated with wound management like application of oil, herbs, red chilies, turmeric etc.

Hence, there is a need to create awareness regarding epidemiology and at-home management of animal bites among general community [5]. Present study was undertaken to understand demographic profile and health seeking behavior of animal bite cases.

2. Material and methods

2.1Study Design: It was a hospital based cross sectional study.

2.2 Study Area: One of the randomly selected Pune Municipal Corporation dispensary namely Dr. Kotnis Hospital. It is situated at Shukrawar Peth, Pune and is among the few dispensaries in Pune which provides free of cost post exposure Prophylaxis to the animal bite cases in form of anti Rabies vaccine (ARV) & anti Rabies immunoglobulin (RIG). It also acts as a referral dispensary for nearby dispensaries where ARV and RIG is not available.

2.3 Study Subjects: All patients with history of animal bite attending dispensary to take anti Rabies post exposure immunization in the study period.

2.4 Study Duration: Three months (1st November 2014 to 31st December 2014).

2.5 Sample Size: 300 (Absolute sampling)

2.6 Methodology

The study was approved by institutional ethics committee. Permission from the concerned authority was sort before the start of the study. A pretested semi structured proforma was used to collect the information from animal bite cases after taking consent from the patient/guardian (in case of minor).

The hospital was visited on all days of the week (except 2nd & 4th Saturday, being government holiday) during working hours i.e. between 10 a.m. to 5 p.m. On average there are 5-6 animal bite cases attending the hospital daily.

Data entry was made into excel sheets and was analyzed by using SPSS (Statistical package for social sciences) version 20.0. Quantitative data was expressed by using mean. Qualitative data variables were expressed by using frequency and percentages. Chi-square test was used to find the association between age group (years) with cause of animal bite. P-value≤ 0.05was considered as significant.

3. Results

A total number of 300 cases attending the anti-Rabies clinic (ARC) for treatment were studied. Majority of the cases were males 220 (73%). Male to female ratio was 2.75:1.

A large number (30%) of animal bite cases belonged to the age group of 16-30 years, followed by the age group of ≤ 15years (23%). Cases belonging to the age group of≥ 60years were least affected i.e. 13% cases. The mean age of the cases was 33 years (SD±21.14 years).

Cases with student as occupation (27%) was the highest affected group and the least affected group was unemployed (5%) [**Table I].**

Depending upon the extend of injuries, maximum number of cases belonged to category III i.e. 219 (73%), followed by category II i.e.77 (26%) and 4 (2%) cases to category I of animal bite **[Table II]**.

On asking the question as to why the cases attended the anti-Rabies clinic (ARC), 146(49%) cases answered that they attended ARC due to fear of death, 146(49%) were suggested by someone else to attend the anti-Rabies clinic and 8 (2%) cases had a fear of behaving like a dog on getting bitten by dog **[Table III]**.

It was observed that 18% of animals were immunized for Rabies. However 70% of the cases did not know regarding the immunization status of the animal.

On comparing different age groups with the cause of animal bite, cases due to provocation of the animal were found mostly in the age group of 31-45 years i.e. 42% followed by the age group of ≤ 15 years i.e. 40%. However there was no significant association found between age groups and cause of animal bite (P -0.171) **[Table IV]**.

Table I: Socio demographic distribution of animal bite cases (n=300)

Characteristics	Number (%)
Gender	
Male	220(73)
Female	80(27)
Age Group	
≤ 15	68 (23)
16 – 30	88 (30)
31 – 45	57 (19)
46 – 60	48 (16)
≥61	39 (13)
Mean age=33 years, SD ± 21.14 years	
Occupation	
Salaried	73 (24)
Unemployed	16 (5)
Business	57 (19)
Labourer	32 (11)
Student	82 (27)
Housewife	20 (7)
Agriculture	20 (7)

Table II: Distribution as per biting animal, category& site of animal bite (n=300)

Biting animal	Number (%)
Dog	242(81)
Cat	28(9)
Rat	26(9)
Others	4(1)
Category	
I	4(2)
II	77(26)
III	219(73)
Site	
Lower limbs	174 (58)
Upper limbs	102 (34)
Head, neck, thorax	24 (8)

Table III: Reason for attending anti rabies clinic (ARC)

Reason for attending ARC	Number (%)
Suggested by Someone	147(49)
Fear of Death	145(48)
Fear of behaving like a dog	8(3)
Total	**300(100)**

Table IV: Comparison of age group with cause of animal bite

Age group	Cause of animal bite		Total	P-value
	Provoked	Unprovoked		
≤ 15	27	41	68	0.171
16 - 30	27	61	88	
31- 45	24	33	57	
46 - 60	18	30	48	
>61	8	31	39	
Total	**104**	**196**	**300**	

Fig I: Distribution of patients according to self pre hospital treatment

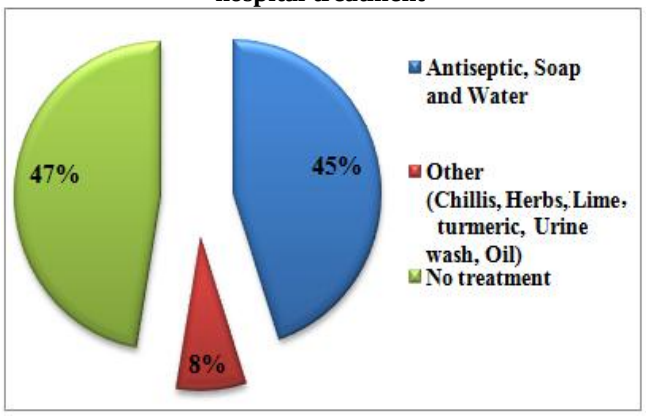
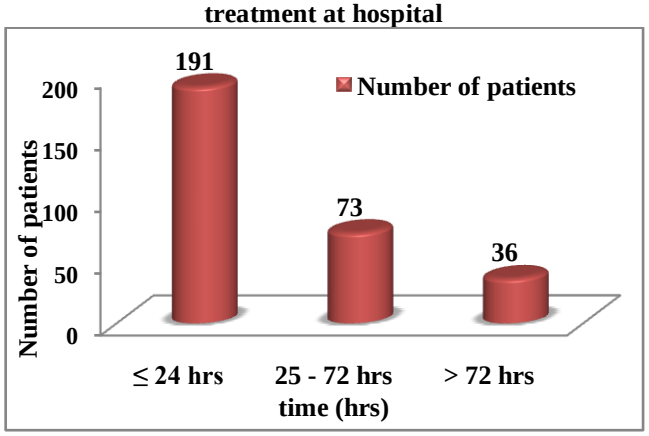


Fig II: Distribution as per time taken before initiation of treatment at hospital



4. Discussion

In the current study dog was responsible for 81% of all animal bite cases, followed by cat (9%) and rat (8%) **Table II**. The studies conducted by Vyas *et al*., Kendre *et al* and Umarigar *et al* observed the dog to be responsible for 97.33%, 94.1%and 94.1% of total animal bite cases respectively.[6-8]

Majority (64%) of cases in the current study were bitten by stray animals. This is similar to the study conducted by Sekhon *et al*, who noticed the number of cases bitten by stray animals to be 58%. [9]

The current study revealed that about 20% of the cases followed the bitting animal for 10 days and the animal was alive in all the cases. The treatment can be modified if animal remains healthy throughout the observation period of 10 days by converting post exposure prophylaxis into pre exposure vaccination by skipping the vaccination dose on day 14 and administering it on day 28 while using Essen schedule. The observation period of 10 days is valid for dogs and cats only as the natural history of Rabies in other animals is not fully understood. [1]

The current study noticed the majority of animal bite cases being bitten on lower limbs (58%). About 18% of cases who were bitten on head, neck and trunk belonged to the age group of ≤ 15 years.Our findings are consistent with the studies conducted by Sukhsohale *et al* and Umarigar *et al*, who observed the number of cases bitten on lower limb to be 68% and 84.3% respectively. [10,11]

Our study noticed that 35% of animal bite cases occurred after provocation of the animal. A large proportion (40%) of cases bitten after provocation were children belonging to the age group of≤ 15 years which is similar to the finding of the study conducted by Umarigar *et al* who noticed the percentage of provoked animal bite cases with age group of < 15 years to be 40%. [11] From the dog's perspective, aggression results under certain circumstances and is stimulus specific. All aggressive behaviors are influenced to varying degrees by excitement level, genetics, hormonal levels, environmental stimulus and past experience [12].

Prompt and adequate local treatment of all animal bite wounds and scratches is the first requisite and is of utmost importance. The purpose of local treatment is to remove as much virus as possible from the site of inoculation before it can be absorbed on the nerve endings [3]. Wound should be washed with plenty of soap preferably under a running tap for at least 5 minutes, irrigation with virucidal agents, which can reduce the chances of getting Rabies by up to 80% [7].

Fig. I shows the distribution of patients according to the self pre hospital local treatment. About 47% cases in the current study did not practice any self pre hospital treatment and 8%of cases applied non recommended substances like turmeric, herbs, lime, oil, chilies and urine wash at the wound site. The result of the current study is consistent with the findings of the study conducted by Sukhsohale *et al*, who observed that 45% of animal bite

cases took no self treatment before reporting to the hospital. [10]

A total of 105(45%) patients reported to the health care facility after 24 hrs for treatment in the current study [**Fig II]**. The study conducted by Umarigar *et al* noticed that 76 (25.8%) patients had not taken ARV within 24 hrs and 6 cases took their 1st dose of ARV after 7 days period. [11] Similarly Joseph *et al* observed the number of cases initiating post exposure prophylaxis after 24 hrs. to be 44%.[13] Ghosh *et al* reported the number of patients attending hospital after 24 hrs. of animal bite to be 22(36%). [14]

5. Conclusion

Majority of animal bite cases belonged to category III dog bite. About one third of cases seek health care facility after one day of bite. Some cases practiced non recommended substances on biting site. Although Rabies is a highly preventable disease by virtue of post expose prophylaxis and immediate proper wound treatment, there is a big gap in knowledge and practice among the general public with regards to the same.

Recommendation

Awareness should be spread in the community regarding the early reporting of the animal bite cases to the health care facility. Programmes should be introduced to reduce the number of stray dog population.

References

[1] National guidelines on Rabies prophylaxis. Available at http://nicd.nic.in/rabies_guidelines2014.pdf. Accessed on 20 November 2014.

[2] Meneres R. Rabies in India. *CMAJ* 2008 February 26; 178(5): 564-66.

[3] Shingare AD, Gadekar RD, Doibale MK, Domple VK, Nair A, Rajput PS. Failure of post-exposure prophylaxis after dog bite. *Scholars Journal of Medical Case Reports* 2005; 3(9B): 877–79.

[4] Singh US, Choudhary SK. Knowledge, Attitude, Behavior and Practice Study on Dog-Bites and Its Management in the Context of Prevention of Rabies in a Rural Community of Gujarat. *Indian Journal of Community Medicine* 2005; 30(3): 81-83.

[5] Ichhpujani RL, Chhabra M, Mittal V, Bhattacharya D, Singh J, Lal S. Epidemilogy of animal bites and Rabies cases in India. A multicentric study. *J Commun Dis.* 2008 Mar; 40(1): 27-36**.**

[6] Vyas S, Gupta K, Bhatt G,Tiwari H. Animal bite management practices: Study at three Municipal Corporation hospitals of Ahmedabad. *National Journal of Community Medicine* 2010; 1(2): 75-78.

[7] Kendre VV, Chinte LT, Jadhav YU. Cultural Practices among Animal Bite Cases of Government Medical College, Latur. *International Medical Journal* 2004; 1(2): 61–64.

[8] Umarigar P, Parmar G, Patel PB, Bansal RK. Profile of animal bite cases attending urban health centres in Surat city: A cross-sectional study. *National Journal of Community Med* 2012; 3(4): 631-35.

[9] Sekhon AS, Singh A, Kaur P, Gupta S. Misconceptions and myths in the management of animal bite cases. Indian *Journal of Community Medicine* Jan.-Mar.-2002; XXVII(1): 911.

[10] Sukhsohale ND, Deshmukh JD, Akre CV. Epidemiological study of patients attending anti-rabies vaccination clinic of tertiary care hospital. *Indian Journal of Applied Research* 2014; 4(1): 409-10.

[11] Umrigar P, Parmar GB, Patel PB, Bansal RK. Epidemiology of animal bite cases attending Municipal Tertiary Care Centres in Surat city: A cross-sectional study. *National Journal of Community Medicine* 2013; 4(1): 153–57.

[12] Szpakowski NM, Bonnett BN, Martin SW. An epidemiological investigation into the reported incidents of dog biting in the City of Guelph. *Can Vet Journal* 1989; 30: 937-42.

[13] Joseph J, N.S, Khan AM, Rajoura OP. Determinants of delay in initiating post-exposure prophylaxis for rabies prevention among animal bite cases: hospital based study. *Europe PMC Plus* 2013; 32(1): 74-77.

[14] Ghosh A, Pal R. Profile of dog bite cases in urban area of Kolkata, India. *National Journal of Community Medicine* 2014; 5(3): 321-24.