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Research Article

An analysis of animal bite cases attending anti-rabies clinic attached to tertiary care centre, Bikaner, Rajasthan, India

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ABSTRACT

Background: Rabies is a widespread, neglected and under reported zoonosis with an almost 100% case fatality rate in human untreated on time, and causes a significant social and economic burden. Objective: Analysis of animal bite cases attending Anti-rabies clinic attached to Prince Bijay Singh Memorial (PBM) hospital, Bikaner, Rajasthan. **Methods:** The study was conducted amongst patient who attended the Anti-rabies clinic attached to PBM hospital Bikaner for management of their Category II and III injuries caused by bites by various animals, during the 3 year period.
Results: Amongst 10916 victims who attended 8335 (76.36%) were males and rest females (male: female ratio 3.2:1). 5796 (53.10%) patients belonged to rural area and 5120 (46.90%) were from urban area. The bite injuries involved different site. Bite of Lower limb accounted for the most 4980 cases (45.62%) then were those of upper limb. Distribution of patients according to different age groups showed preponderance in the 0-10 year's age group 2768 (25.35%) patients, 2266 (20.07%) were in the 11-20 years age group. The most common biting animal was stray dog (76.33%). Month wise distribution showed highest incidence during January 11.11%, and the least cases reported in the month of September 5.81%.
Conclusions: India is amongst those countries reporting highest number of deaths due to rabies and also is amongst those countries where most people receive post exposure prophylaxis but true number is still lacking because of absence of well-organized surveillance system. Epidemiological studies like present study may help assess the true magnitude of problem.

Key Words: Rabies, Animal bite, Category II, Category III

INTRODUCTION

Rabies is a widespread, neglected and under reported zoonosis with an almost 100% case fatality rate in human untreated on time, and causes a significant social and economic burden.[1] The disease is caused by a neurotropic virus belonging to the genus Lysa virus in the family Rhabdoviridae. The virus is transmitted by its introduction into wounds or cuts in skin or mucus membranes, most commonly by bites of rabid animals.[2] An estimated 55,000 people die annually from rabies.[3] The main biting animal is dog, mostly strays.[4] Rabies is also found to occur following bites by rabid jackals, horse, cats, monkeys.[5]

The objective of this study was to study the epidemiological characteristic and anti- rabies practices in patient attending the tertiary care hospital Bikaner, Rajasthan, which will thereby help to create awareness amongst people and guide them to take appropriate preventive measure. This will then help to reduce the disease burden.

METHODS

The study was conducted amongst patient who attended the Anti-rabies clinic attached to Prince Bijay Singh Memorial (PBM) Hospital Bikaner, with Category II and III injuries caused by bite of animals, for management of

animal bite. The study period was of three years, extending from 1st April 2012 to 31st March 2015. Data was collected from the record available at the clinic. Microsoft word and excel have been used to generate tables and graphs and also for analysis.

RESULTS

Amongst 10916 victims who attended the clinic during the duration with Category II and III injuries, majority were males (76.36%) and 23.64% were females (male: female ratio 3.2:1).

Table 1: Socio demographic profile of study subjects.

Sex wise distribution	
Sex	**Frequency n = 10916 (%)**
Male	8335 (76.36)
Female	2581 (23.64)
Geographical distribution	
Rural/urban	**Frequency n = 10916 (%)**
Rural	5796 (53.10)
Urban	5120 (46.90)
Age wise distribution	
Age groups (in years)	**Frequency n = 10916 (%)**
0-10	2768 (25.35)
11-20	2266 (20.07)
21-30	1669 (15.28)
31-40	1332 (12.20)
41-50	1361 (12.46)
51-60	980 (8.97)
>61	540 (4.94)

Rural urban difference showed that 53.10% patients belonged to rural area and rest were from urban area.Distribution of patients according to different age groups showed most attacked (25.35%) were those in the 0-10 years age group, next 20.07% were in the 11-20 years age group, then 15.28% in the 21-30 age group, 12.20% in the 31-40 years age group, 12.46% in the 41-50 age group, 8.97% in the 51-60 age group and least 4.94% in the more than 61 year age group. Amongst 10916 patients 7270 (66.59%) belonged to Category II and 5790 (33.40%) to Category III. The bite injuries involved different site of which lower limb accounted for the most (45.62%), then upper limb (29.95%). Head and neck accounted for 13.83% cases and the site least involved was trunk, accounting for 10.58% injuries.

Table 2: Site of bites wise distribution.

Site	**Frequency n = 10916 (%)**
Upper limb	3270 (29.95)
Lower limb	4980 (45.62)
Trunk	1156 (10.58)
Head and neck	1510 (13.83)

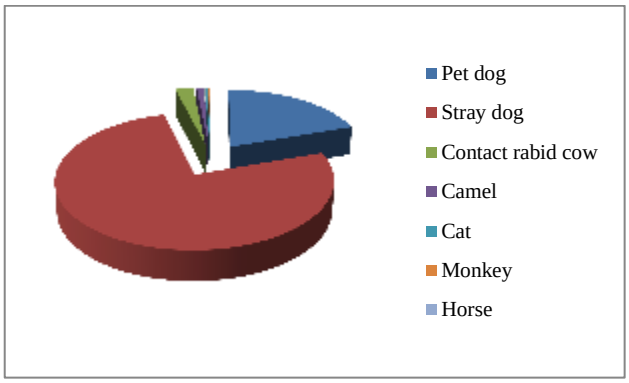

Figure 1: Animal wise distribution.

In this study the most common biting animal was stray dog 76.33% followed by pet dog which were responsible for 19.54% bite. Contact with rabid cow accounted for 2.38% of cases. Few cases of bites from other animals also reported - camel 0.96%, cat 0.40%, monkey 0.15%, and horse 0.13%.

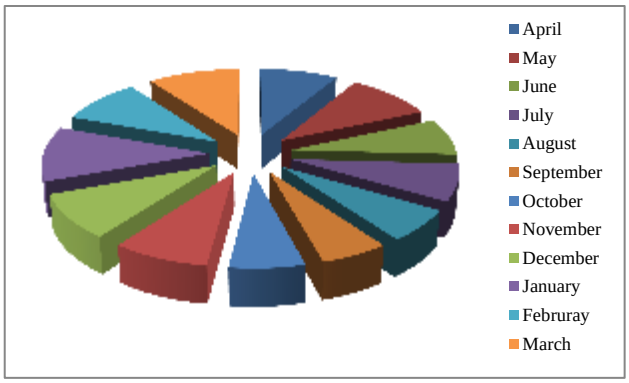

Figure 2: Month wise distribution.

During the three year period the incidence of cases in different months were follows- January 11.11%, February 9.25%, March 10.23%, April 8.69%, May 9.73%, June 7.48%, July 7.48%, August 6.47%, September 5.81%, October 6.39%, November 8.25% and December 9.06%.

DISCUSSION

In this study demographical profile showed a male predominance (76.36%) with a male: female ratio 3.2:1, this is probably because rabies is an exposure related disease and as males move out of their house more than females, mainly because of occupational purpose, males are affected more than females. This observation corroborates with the observation made by many other authors in their respective studies.[4-16]

The study also shows that the victims of the bite mainly belonged to rural area this may be because they are mainly involved in outdoor activities and hence more exposed to bite by various animals. Also in rural areas there are more animals. This observation is in concordance with various other studies.[4,16]

Amongst the different age group children below 10 year have been found maximally affected, followed by children in 11-20 years group. Children are the principal victims because their inherent fondness to animal, because of their tendency to provoke animals and also because they are less likely to defend themselves against the attack by rabid animals. This observation corroborates well with other studies.[17-19]

The site wise distribution showed lower limb to be the most commonly affected site. This is not unusual as it is the most accessible and this observation corroborates with study by Singh J, Jain DC, Bhatia R, Ichhpujani RL, Harit AK, Panda RC, et al.[13]

In our study 66.59% patients belonged to Category II and 33.40% belonged to Category III. The distribution on the type of biting animal showed that the most common animal involved was dog. Stray dog were responsible for the majority of bites (76.33%) and pet dogs accounted for around 20% of bites.

Bikaner has very high population of stray dogs. Same conclusion has been drawn in other studies also.[7] The next main cause was by contact with rabid cow which accounted for 2.38% of cases. Bikaner has a lot of dairies which is responsible for high number of cows and thereby people having more chances of contact with rabid cows.

This study showed increased number of cases in winter and summer. The study made by Behera TR, Satapathy DM, Tripathy RM, Sahu A in Berhampur, Orrisa also shows a rise number of cases in summer and winter months.[10] The study made by Hanspal JS, Bhandari D, Nagar S also show rise in number in winter month.[12]

CONCLUSION

The observations made in this study have corroborated well with other studies. Because rabies is not a modifiable disease in India and there is no organised surveillance system, the actual number of cases and deaths might be higher.[20] Epidemiological studies like present study may help assess the true magnitude of problem.

Stringent measure including patient education, early initiation of post exposure prophylaxis in the form of modern tissue culture vaccine, and administration of human rabies immunoglobulin, antimicrobial therapy for high risk wounds and control of population of stray dogs needs to be undertaken to reduce of the social and economical burden of disease.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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