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Original Research Article

Epidemiological profile of animal bite patients attending emergency department at a tertiary care health facility in a northern hilly Indian city

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ABSTRACT

Background: Rabies is a highly infectious zoonotic disease with a high case fatality rate. In India, approximately 20,000 deaths among 17.4 million exposed people occur every year. The data on animal bites is scarce and unreliable due to poor surveillance and hence, the projected figures are far less from the actual numbers. The present study was conducted to describe epidemiological characteristics of animal bite patients attending casualty department at a tertiary care Government health facility in Shimla, Himachal Pradesh.
Methods: It was a retrospective study based on secondary data received from animal bite register for year 2017 at casualty department of the Indira Gandhi Medical College and Hospital, Shimla, Data of 1512 patients attending the casualty department with history of animal bite was included for the study purpose.
Results: About 58% of victims were males and the maximum (22.6%) animal bites were seen in 21-30 years age group. Majority (51.6%) of patients were exposed to dog bites, followed by monkey bites (42.85%) and cat bite 49 (3.2%). About 69.9% of animal bites were in the lower limbs, followed by upper limbs (22.1%), abdomen (4.4%) and head and neck region (3.6%). Maximum bites were category III bites (74.6%) followed by of category II bites (12.9%).
Conclusions: Study highlights the neglected but significant picture of animal bite in the Shimla city. Timely and correct post exposure prophylaxis for the animal bite victims is necessary to prevent rabies. This should be supplemented with a robust surveillance and reporting system. With the global aim of zero rabies deaths by 2030; it is time to strengthen the anti-rabies activities at every level.

Keywords: Animal bite, Rabies, Post exposure prophylaxis, Tertiary care institution

INTRODUCTION

Rabies is a highly infectious viral zoonotic disease with almost 100% case fatality. The disease spreads to man, when a rabid animal suffering from rabies bites or licks human beings. In India, an estimated 20,000 deaths occur with almost 17.4 million people being exposed to animal bites every year.[1] The data on animal bites is very scanty and unreliable due to lack of quality surveillance and reporting system; and thus the actual scenario is even worse than estimated burden. There is no treatment or cure for rabies. Prevention in the form of post exposure prophylaxis (PEP) is the only intervention. It has been estimated that if timely post exposure prophylaxis is not given, then every year 3.27 lakh people would die just in Asia and Africa.[2]

Himachal Pradesh is a northern hilly state of India. It is predominantly rural and hilly where villages are near forests with wild reservoirs of rabies. In India approximately 20,000 of an estimated global annual 55,000 rabies deaths occur and three-quarters of these deaths occur in rural areas. In Himachal Pradesh 24,000 to 25,000 dog bite cases occur every year. In addition to causing pain, injury and mental trauma, dogs are the source 100% fatal disease known as rabies. As per the policy of the Government of Himachal Pradesh, there should be free anti rabies vaccine for all the dog bite patients of state from the level of primary health centers under the controlled cold chain.

Knowledge about post exposure prophylaxis is essential in the community to seek vaccination after animal bite. Anti-rabies vaccine is being provided free of cost, at Indira Gandhi medical college, Shimla for animal bite victims visiting this center for vaccination from various places of Himachal Pradesh. Considering this background, the present study was undertaken to describe the epidemiological characteristics of animal bite victims attending emergency department at Indira Gandhi medical college (IGMC), Shimla, Himachal Pradesh.

METHODS

Study design

Retrospective study based on secondary data received from animal bite register for year 2017.

Study area

Emergency department at IGMC, Shimla which is the apex center for anti-rabies management in the district.

Study duration

1 year w.e.f January 2017 to December 2017.

Study population

Patients attending emergency department at Indira Gandhi medical college, Shimla for management for animal bite.

Study sample

All patients attending emergency department for animal bite during study period were included in the study. A total of 1650 patients attended the center. Data of 1512 patients was analyzed and rest was excluded because of the missing data.

Data analysis

The data was collected, cleaned and entered into Microsoft Excel spreadsheet and was transferred to Epi info version 7.2.2.6 software for analysis. The discrete variables were expressed in terms of frequencies, proportions and percentages of each.

Ethical considerations

Prior permission was taken from Institute Ethical Committee to go ahead with the study. Personal identifiers were omitted in order to maintain confidentiality and anonymity.

RESULTS

A total of 1512 animal bite victims were included for the study purpose. There were a total of 877 (58%) males and 635 females (42%) in the study population. Almost three-fourth of the study population (74%) belonged to urban area. 28% of study population came from rural areas for vaccination.

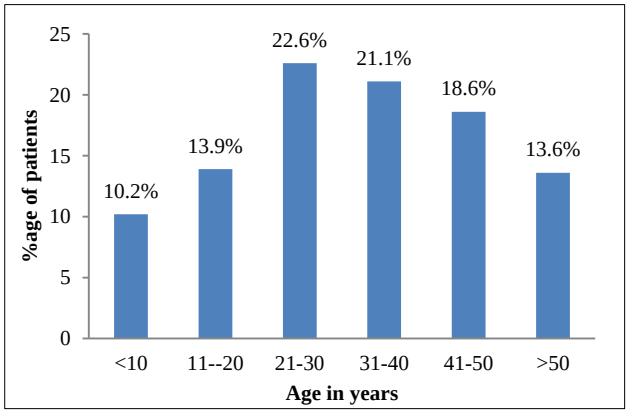

Figure 1: Age wise distribution of patients (years).

Of the total 1512 animal bite victims, highest proportion of victims were in the age group of 21-30 years (22.6%) followed by 31-40 years (21.1%). Almost 14% of people belonged to age group of 11-20 years. Around 13.6% of people belonged to age group of >50 years (Figure 1).

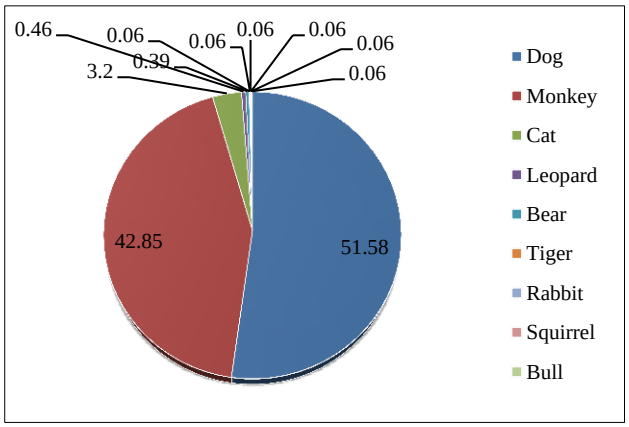

Figure 2: Type of animal bite (%).

Around 51.6% of animal bites were dog bites, followed by monkey bites (42.85%). Cat bites, leopard bites and

pig bites were 3.2%, 0.46 and 0.39% respectively. One (0.06%) bite each from tiger, rabbit, squirrel, bull, buffalo and cow bite was observed. Among the dog bites, 19.8% of the bites were pet dog bites and 81.2% were stray dog bites (Figure 2).

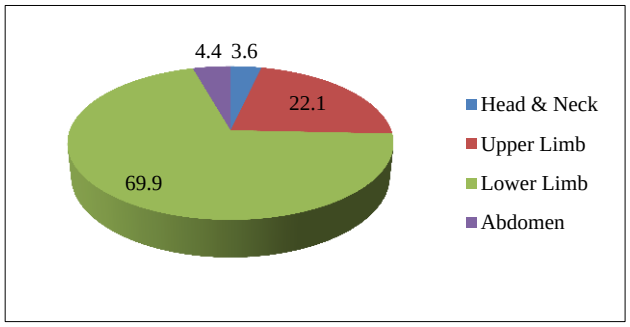

Figure 3: Distribution of patients according to site of animal bite (%).

A total of 69.9% of animal bites were in the lower limbs, followed by upper limbs (22.1%). Animal bites on abdomen were 4.4% and bites on head and neck region were 3.6%. Maximum bites were category III bites (74.6%) followed by 12.9% of category II bites and least were category I bites (12.5%) (Figure 3).

DISCUSSION

In the present study it was found that, adult males were major victims of animal bite. This could be because of higher outdoor activities of males. Similar findings were found in a study conducted by Sahuet al and Ganesh et al.[4,5]

The study found that the main biting animal was dog, which is similar to various other studies.[4-7] However, in present study stray dog was the common biting animal similar to other studies where stray dog was the most common biting animal.[4-7] Lower limb was the most common site of animal bite as it is easily accessible to dogs or animals. Similar findings were found in other studies too.[5,8,9]

Category III wounds were highest and category I wounds were the least among study population. This finding similar from a study conducted in Pune, where category III bites were highest.[5] Almost 65.7% of patients received post exposure prophylaxis within 24 hours of animal bite. This could be because of the reason that the anti-rabies vaccination clinic functions 24 hours and patients exposed to animal bites even during evenings report the same day. This finding was similar to a study conducted in Lucknow, where approximately two-thirds of study population received post exposure prophylaxis within 24 hours of animal bite.[4]

In the present study majority (48%) of victims washed their wound with soap and water. This finding was comparable to a study conducted by Harish et al, where 69.8% of study population washed their wound with soap and water. However, the study findings differed with a study conducted by Jahnavi et al, where majority (37.65) of them either did not wash their wound or applied irritants to the wound.[10]

It was also observed that majority of category III wounds were found in extremes of age group. This could be implied to the fact that extremes of age group cannot run faster and escape from the animal.

CONCLUSION

Dog was the most common biting animal affecting adult males and people from communities residing in urban areas. Unimmunized stray dog bites were higher than pet dog bites. Time lag between the exposure and post exposure prophylaxis was found to be 12 -24 hours in half of the study population. Wound care after animal bite was found to be satisfactory among the study population.

Stray dog and monkey population should be controlled. Municipal corporation and animal husbandry departments should collaborate in this venture. Simple messages like “vaccinate your dogs and cats against rabies” and “seek anti rabies vaccination after an animal bite” should be propagated and emphasized through electronic and print media.

Awareness campaigns, highlighting the severity of disease and knowledge about free availability of highly effective anti-rabies vaccine should be imparted to the community. Availability of ARV and immunoglobulin should be ensured at peripheral health institutions. Countermeasures addressing each aspect of the disease can lead to the fulfillment of the ultimate goal of zero human deaths due to rabies by 2030.

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