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Research Article

Profile of Animal Bite Cases in a Tertiary Care Hospital in Mysuru

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A B S T R A C T

Animal bites cause a big burden worldwide in terms of morbidity and mortality. As per WHO, dog bites are the cause of major animal bite injuries followed by snake bites, cat bites, and monkey bites. Annually about 55,000–60,000 persons die of rabies, of which nearly one-third are from India alone. Rabies, though being a 100% fatal disease, is also a potentially preventable disease.

Objective: To estimate the proportion of animal bites in patients attending anti-rabies clinic of a tertiary hospital, Mysuru.

Material & Methods: A cross-sectional study was carried out during the period of June 2018 - May 2019. Secondary data was collected from the registers available at the anti-rabies clinic in KR Hospital, Mysuru, using a pretested proforma. This information was compiled in an excel sheet and analysed using simple measures like proportions, percentages, and graphs.

Results: A total of 3861 animal bite cases were reported, out of which, 69.1% were males and 30.9% were females. Dog bites contributed the highest (92.1%) followed by cat bites (5.2%). As per the category of wounds, 59.6% were Category 2 and 36.2% were Category 3 wounds.

Conclusion: Dog bite is the commonest animal bite which needs to be addressed as a priority with appropriate preventive strategies. There is a pressing need to create awareness among the general population about the need for timely health care seeking behaviour and to avail the benefit of free anti-rabies vaccination in the public health sector in order to prevent the risk of fatal events.

Keywords: Rabies, Animal Bite, Anti-rabies Clinic, Category of Bite

Introduction

Rabies is a zoonotic disease caused by the rabies virus and most commonly transmitted by animal bites. It is one of the ten leading causes of death due to infectious diseases across the world.[1] The disease occurs in over 150 countries throughout the world and poses a great threat to more than 3 billion people worldwide. Around 60,000 human deaths are still reported across the world, with nearly 80% of them reported from Asian countries.[2] India reports about 18,000–20,000 cases of rabies per year.[3] In India, animal bite has been a major public health problem and an estimated 17.4 million animal bites occur annually, which amounts to

an incidence of 1.7%. There is one rabies death every 30 minutes and one animal bite every 2 seconds in the country.[4] Although a number of carnivores and bat species serve as natural reservoirs of the rabies virus, domestic dogs are the most common reservoir, and more than 95% of human deaths are caused by dog-mediated rabies.[2]

Although 100% fatal, rabies can be prevented by timely interventions like wound washing, avoiding unnecessary suturing, and by the administration of Anti-Rabies Vaccine (ARV) and rabies immunoglobulin. Globally, about 15 million people take rabies Post-Exposure Prophylaxis (PEP) every year. The high mortality from rabies can be ascribed to the fact that in spite of the availability of effective PEP, people are mostly unaware of the seriousness of the disease and its prevention.[5]

The Indian Government has adopted guidelines for rabies vaccination from the World Health Organization (WHO). Anti-rabies vaccination requires only a small quantity of vaccine to be injected into the skin. It is 60-80% cheaper than the usual vaccination by the intramuscular route. Also, by this intradermal route, the compliance will be high due to less number of visits and decreased cost of regimen.[3]

In India, rural people are the major victims of rabies. The main reason for the risk of rabies among rural populations is their ignorance about the grave nature of the disease, common myths and misconceptions related to the treatment of animal bite wounds, inaccessibility to healthcare centres, and non-availability of rabies biologicals at an affordable cost.[6,7]

Material & Methods

The present cross-sectional study was conducted in the Anti-Rabies Clinic (ARC) of Krishna Rajendra Hospital which is a tertiary hospital of Mysuru after obtaining ethical clearance from the Institutional Ethics Committee of Mysore Medical College & Research Institute, Mysuru. The method of data collection employed was by making use of secondary data from the various registers available in the anti-rabies clinic. The basic information available in the registers were collected. The study period was from June 2018 to May 2019. The total number of cases registered during this period was 3861. All patients registered in the anti-rabies clinic were included in the study. The socio-demographic data of the cases were noted down and the factors related to the dog bite such as type of animal bite, category of bite, site of bite, time since bite, and compliance of patients with reference to the doses of vaccine were collected from the anti-rabies register and compiled.

Statistical Analysis

Data were entered and analysed in a Microsoft Excel sheet and descriptive statistics such as percentages and proportions were calculated with reference to the proportion of animal bites and the associated factors. Graphical methods of data representation such as bar charts and pie charts were used for depicting the category of bite, site of bite, and time since bite.

Results

Among 3861 animal bite cases (Table 1), maximum were reported among males (69.1%) and in people aged between 20-50 years (48.1%). In this study, the major animal bite was found to be dog bite (92%) followed by cat bite (5%).

Table 1.Socio-demographic Profile of the Patients

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	2671	69.1
Female	1190	30.9
Age (years)		
< 20	1249	32.3
20-50	1853	48.1
> 50	759	19.5
Type of animal bite		
Dog	3552	92
Cat	193	5
Others	116	3

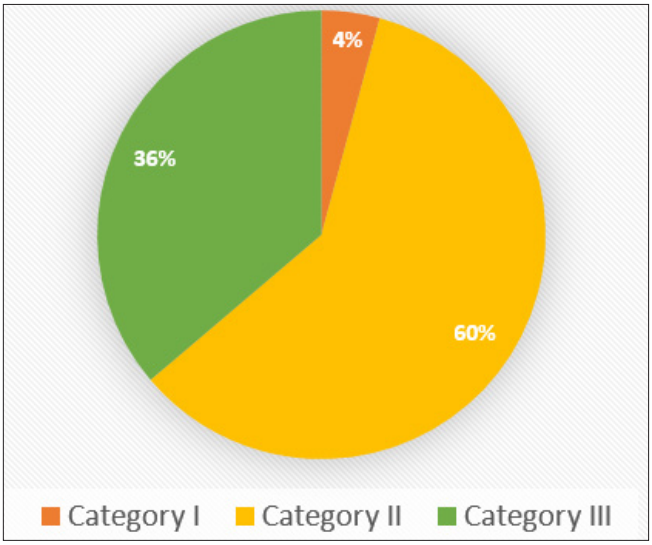

Figure 1.Distribution of Subjects according to Category of Bite

Figure 1, shows that majority of the bites were of category II (60%), followed by category III (36%).

According to Figure 2, the most common site of bite was lower limb (61%, n = 2352) followed by upper limb (29.5%, n = 1140).

Figure 3, shows the time taken by the patients to avail

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treatment after the animal bite. Majority of the people (61.3%, n = 2367) reported to the anti-rabies clinic between 6 to 24 hours after the bite.

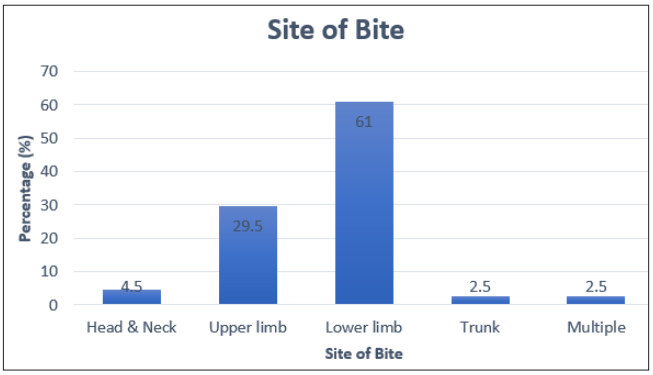

Figure 2.Distribution of Subjects according to Site of Bite

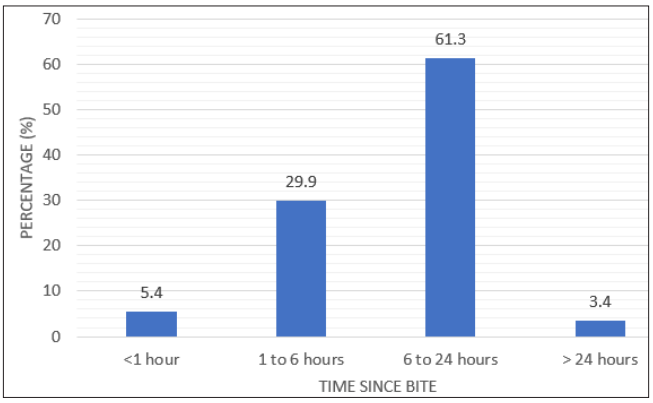

Figure 3.Time taken for Treatment after Animal Bite

Table 2.Monthly Distribution of Vaccinated Animal bite cases

Month	Total Number of Cases
June 2018	323
July 2018	336
August 2018	345
September 2018	357
October 2018	292
November 2018	340
December 2018	317
January 2019	310
February 2019	185
March 2019	349
April 2019	379
May 2019	328

Table 2, shows the monthly distribution of animal bite cases. The distribution of cases were almost the same in all months. Due to non-availability of vaccine during the month of February 2019, only 185 patients got vaccinated.

A total of 3861 animal bite cases were treated at the anti-rabies clinic during the study period. The 1st dose of intradermal rabies vaccine was given to the patients on the 1st day of visit to the ARV clinic (n = 3861). The patients were advised to return on day 3, 7, and 28 to complete the full schedule, but it was observed that only 2841 (73.6%) patients returned for the 2nd dose. Further, the compliance dropped for the 3rd and 4th doses (48.7% and 23.5% respectively) (Table 3). It was observed that only 23.5% of the registered cases completed the full schedule of immunisation in this clinic.

Table 3.Compliance Rate of ARV Doses

Doses	Number of Vaccines	Compliance Rate (%)
1st	3861	100
2nd	2841	73.6
3rd	1884	48.7
4th	908	23.5

Discussion

Animal bite is a major public health problem in India. In this study, a total of 3861 cases of animal bites were reported in the anti-rabies clinic of KR hospital during the study period.

It was observed that males (69.1%) were more affected than females (30.9%). This was in consonance with other studies done by Sangeetha et al.,[8] Bharadva et al.,[9] Vinay et al.,[10] and Nikhil et al.,[11] The possible reason behind this may be that more males go out for work as compared to females.

A majority of cases with animal bites in this study were aged between 20-50 years (48.1%). Studies done by Sangeetha et al.8, Bharadva et al.,[9] Vinay et al.[10] and Amrutha et al.,[4] showed results similar to that of this study, but in the study done by Nikhil et al.,[11] the affected age group was 11-20 years. This may be due to the fact that young individuals might be involved in more outdoor activities.

The dominant category of bite in this study was observed to be category II (60%). This was in consonance with the studies done by Sangeetha et al.[8] and Amrutha et al.,[4] whereas, in a few other studies done by Venu Shah et al.,[12] Samreen et al.[13] and Kumar et al.,[14] the victims mostly had category III animal bite.

Majority of the people in this study had animal bites in their lower limbs (60.9%). This was similar to the findings in studies done by Bharadva et al.,[9] Venu Shah et al.,[12] Meena et al.[15]

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In this study, the time taken by majority of the patients to avail treatment after the animal bite was between 6 to 24 hours (61.3%). In this regard, there were many variations in the findings reported by other studies. Sangeetha et al.,[8] observed that most of the patients reported in less than half an hour. In a study by Bharadva et al.,[9] many patients reported between 1 to 6 hours after the animal bite. In other studies by Venu Shah et al.,[12] Meena et al.,[15] most of the patients reported after 24 hours of animal bite. This variation among these studies depends upon people's awareness of the problem of animal bites. In this regard, awareness regarding animal bites and early initiation of treatment should be improved among the people.

In the current study, the compliance rate of completing all 4 doses of vaccine was 23.5% which is very low as compared to a study done by Amrutha et al.,[4] where the compliance rate of completing all 4 doses was 40.8%. This may be due to the fact, that other people would have taken their doses in the nearby hospitals or Primary health centres and some people would have missed their doses.

Conclusion

This study indicates that animal bites constititute a significant yet neglected public health problem in our country which needs to be addressed as a priority with appropriate preventive and control strategies. There is a pressing need to create awareness among the general population about the need for timely health care seeking behaviour and to avail the benefit of free anti-rabies vaccination in the public health sector in order to prevent the risk of fatal events. The need for rabies immunoglobulin in severe category of bites also has to be emphasised. Peer-based behaviour change communication and advocacy will play a great role to achieve this goal. Also, there is a need to broadcast educational programmes through mass media for creating awareness among the people regarding the complication and prevention of animal bites and to avoid contact with stray dogs. On the other hand, the health officials should take measures to control stray dogs and intensify pet dog vaccination as much as possible. Similar studies in other regions also are highly recommended.

Table 4.Summary of Articles in Discussion

Author's Name/ Study Year	Geographic Location	Most Commonly Affected Gender	Affected Age Group (years)	Category of Bite	Type of Animal Bite	Most Common Site of Bite	Time Taken to Reach Hospital
Venu Shah et al./ 2012[12]	Gujarat	Male	15-24	III	Dog	Lower limb	> 24 hours
Vinay et al./ 2013[10]	Karnataka	Male	15-45	III	Dog	-	-
Nikhil et al./ 2014[11]	Pondicherry	Male	11-20	-	Dog	-	-
Jahnavi et al./ 2015[9]	Karnataka	Male	15-60	-	Dog	Upper limb	-
Bharadva et al./ 2015[9]	Gujarat	Male	15-45	III	Dog	Lower limb	1-6 hours
Sangeetha et al./ 2016[8]	Tamil Nadu	Male	26-45	II	Dog	Lower limb	< 1/2 an hour
Amrutha et al./ 2017[4]	Karnataka	Male	15-45	II	Dog	-	-
Samreen et al./ 2019[13]	Kashmir	Male	21-30	III	Dog	Lower limb	-
Meena et al./ 2019[15]	Rajasthan	Male	26-45	-	Dog	Lower limb	> 24 hours
Kumar et al./ 2019[14]	Himachal Pradesh	Male	21-30	III	Dog	Lower limb	-

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