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Research Article

Injuries due to dog bites: a cause of concern

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ABSTRACT

Background: Animal bites pose a major public health problem in children and adults worldwide. Numerous animal species have the potential to bite humans, the most important are those arising from dogs. The Aim of the study was to evaluate patients with regards to age, sex, site, type of dog (stray or pet) category of bite, first Aid management & awareness for anti-rabies vaccine (ARV).
Methods: It was a prospective study carried out by department of surgery, for a period of one year. All patients with dog bites were selected. The patients were interviewed as per the proforma.
Results: The majority of the patients were males with peak age group in the first decade. Most common site was lower limbs. Most bites were by stray dogs and in rural areas. Majority applied home made preparation as first aid.
Conclusions: Most of dog bite cases are seen in children and majority are in males. Many people are not aware of First aid. Dog bites are common in rural areas. ARC clinics should be set up separately. With the availability of better media facilities the awareness of first aid and seeking medical attention at the earliest can be increased.

Keywords: Dog bite, ARV, First aid

INTRODUCTION

Zoonotic diseases have been known since Biblical times. Developing countries suffer more because of less developed Health and veterinary services. Rabies being a zoonotic disease is transmitted to humans by animal bites, mainly dogs. Nearly 20,000 people die of rabies every year in India.[1] In this era of mass communications and advanced health systems, even physicians know little about prophylactic measures following animal bites. After an animal bite, post-exposure rabies prophylaxis is the only way to prevent rabies disease.[2] The profile of animal bites varies from country to country and region to region within country. In India, dog bites are more common.[3]

In India, patients pay for nearly half of financial burden attributed to rabies.[4] Studies conducted at different parts of India had the limitations of area specificity and their results could not be generalized.[5,6] Most of the studies on dog-bites and rabies in India are hospital-based and limited to their management.[7,8]

METHODS

This is a unique study in this part of Karnataka (H-K region) as yearly more than 5000 cases are reported to hospital. Such a study has not been performed in this region. This is a study of 965 patients of dog bite coming to surgery OPD, of Gulbarga Institute of Medical

Sciences, Kalaburgi. This study was carried out over a period from June 2014 to May 2015, i.e., over a period of 12 months. For the study patients were interviewed and parameters like age, sex, address, timing of presentation, type of dog, site, First Aid and awareness for anti-rabies vaccine were recorded after obtaining consent.

In this study patients were categorized as male and female and were given different scorings (male=1, female=0). Patients were also given scoring for cleaning the wound, following any social customs as a first aid for bite, type of biting dog (stray or pet), the category of bite as shown in Figure 3 is category III bite, Figure 4 is showing category II bite and awareness for ARV. The scoring system was followed for easy analysis of the data.

The modalities of treatment for the patients were medical (ARV) and surgical procedures for category 3 bites causing facial disfigurement and haemorrhage. All patients were followed till complete course of ARV was completed. Postoperative care was meticulously followed for surgical patients to monitor complications. Medical management included treating the patient with first aid (washing wound) and ARV. Patients with bites on head neck & face were tabulated separately. The total number of bites by a single dog was also taken into consideration for analysis.

Inclusion criteria

- Patients coming to OPD with dog bite.
- Patients with dog bite in any part of body.
- Patients of all age groups

Exclusion criteria

- People handling rabid animals.
- All other animal bites.

Statistical methods used

- Frequency charting
- Pie diagram
- Bar diagram
- Chi square test

RESULTS

The maximum number of patients was found to be in the age group between 1-10 years .i.e., 232 patients as given in Table 1 and Figure 1.

The Majority of patients were male's .i.e., 696 as presented in Table 2 and Figure 2.

Total number of patients with stray dog bite was 526. As seen in Table 3. Most of the patients had presented to hospital within 24 Hours i.e., 732 as shown in Table 4.

Table 1: Frequency distribution of age groups in years.

Age group	Frequency
≤10	232
10-20	203
20-30	162
30-40	115
40-50	101
50-60	71
60-70	61
70-80	12
80-90	6
90-100	1
100-110	1
Total	**965**

P< 0.05 signifying that above findings are important.

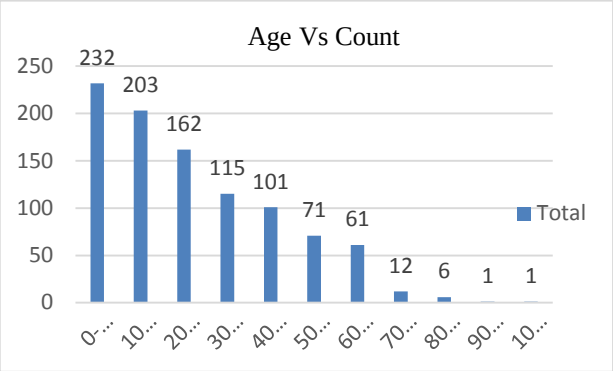

Figure 1: Frequency distribution of age groups.

Table 2: Frequency distribution of gender.

Gender	Count
Female	269
Male	696
Grand total	965

Significant difference between male and female patients (P<0.001)

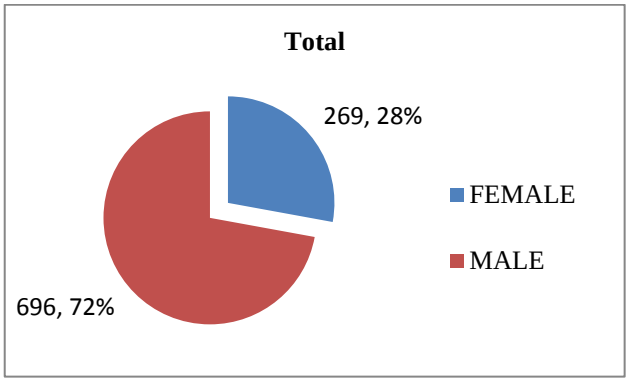

Figure 2: Frequency distribution of gender.

Table 3: Frequency distribution of type of dog.

Type of dog	Count
Stray	762
Pet	203
Grand total	965

Significant difference between pet and stray dog bites (P<0.05)

Table 4: Timing of bite to consultation.

Presented within 24 hours	Count
No	233
Yes	732
Grand Total	965

(P<0.05) suggesting significant finding regarding consultation.

Majority of patients had category 2 bite as per WHO as shown in Table 5.

Table 5: Frequency distribution of category of bite.

Category	Count
1	332
2	561
3	72
Grand total	965

In all 386 patients had dog bite on LLL (left lower limb) & 331 on right lower limb (RLL) as seen in Table 6.

Table 6: Frequency distribution of site of bite.

Site	Count
LLL	386
LUL	70
O	63
RLL	331
RUL	115
Grand Total	965

P (<0.05) suggesting significant finding for site of bite.

In the current study 554 patients didn't wash the site of dog bite as given in Table 7.

Table 7: Frequency distribution of washing wound as first aid.

Cleaned	Count
No	554
Yes	411
Grand total	965

Of the other sites, other than limbs HNF (head, neck, face) was the common site as shown in Table 8. Most of the patients and their parents (in case of children) were self-aware of ARV (anti rabies vaccine) as shown in Table 9.

Table 8: Frequency distribution of bite other than limbs.

Other site	Count
Abdomen	15
Back	12
Genitalia	5
HNF	31
Grand total	**63**

Table 9: Frequency distribution of awareness of ARV.

Awareness for ARV	Count
Others	232
Self	733
Grand total	965

(P< 0.05) showing many patients are self-aware regarding ARV.

Figure 3: Category III-dog bite on face.

Figure 4: Dog bite on left fore arm.

DISCUSSION

The commonest age group reported by some of the series for dog bites is between 1-15 years.[9] Dog bites typically affects children more commonly than adult.[10] Our study did have similar report. Dog bites are common in males than females.[11,12] Our series had a similar finding. In our study stray dog bites were common. Sudarshan et al reported that stray dog bites are common than pet dog bites. In our study 732 patients presented within 24 hours. In another series by Kale reported that most cases present

within three days.[13] Majority of patients do not wash their wounds as per Sudarshan et al. which was a similar finding in our study. Dog bites are common in lower limbs as per our study and Khan et al. Although some studies have proved that category III dog bites are common.[14] In our study we found a different finding that category II bites were more common which was a similar finding to Kale et al.[13] The awareness level of study subjects with regard to preventive aspects of rabies revealed that only 61.1 per cent knew that rabies transmits through animal bite but in our study the awareness level was high (733 of 965) 73.5%.[15]

The following conditions most likely call for surgical intervention.

1. Category III bites from dogs with oozing of blood.
2. Facial disfigurement
3. Bites on neck causing injury to trachea and oesophagus.

Most patients did receive immunoglobulin in category III bites. As part of this study most patients who did not wash their wounds was educated regarding washing of wound with soap and water.

CONCLUSION

The most common age group is 1-10 years. Dog bite is common among men. Stray dog bites is more common than pet dogs. Pet dog bites are found on upper limbs. Most patients present to hospital within 24 Hours. Majority of patients have category II bites. Most common site of dog bites is lower limbs. Although presentation of patients is within 24 hours, majority still resort to traditional methods and customs. They do not wash the site of bite. Most of the patients are self-aware of ARV (anti rabies vaccine). Patients need to be educated regarding first aid management of dog bites. Anti-Rabies clinics should be set up at high incidence areas for better surveillance and patient education.

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