

Original Article

ANALYSIS OF DOG BITES IN KASHMIR: AN UNPROVOKED THREAT TO POPULATION

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Sideeq K, Bilquees S, Salimkhan M, Haq IU. Analysis of Dog Bites in Kashmir: An Unprovoked Threat to Population. Natl J Community Med 2014; 5(1): 66-68.

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ABSTRACT

Objectives: The study focuses on the analysis of regional distribution, pattern and outcome of dog bite injuries sustained in Kashmiri population and assessing the burden on society.**Methods:** In this retrospective survey antirabies clinic record of all patients who sought medical attention after a dog bite in tertiary centre of Kashmir SMHS hospital between April 2010 to May 2013 were reviewed.**Results:** A total of 13852 patients registered over a period of three year with mean age 27.699±17.825. Majority cases were from Srinagar district with maximum frequency during summer season. The maximum victims (96%) were by stray dogs. About 96% of the patients had injuries to single body region and the lower limbs were affected in (46.5%). The majority of the patients who came to centre were of class III (74%) as most of the cases were referrals to tertiary centre. Inpatient treatment was required in (9%) patients. The ARC of SMHS has registered 8 deaths due to rabies in three year period with alarming increase of dog terror in Kashmiri population.**Conclusions:** Dog bites injuries in Kashmir are very frequent and dog population is increasing in alarming rates. Children who are younger than 10 years represent the high-risk group for dog attacks leading to alarming increase in anxiety disorders among children and directly or indirectly it influences the quality of life of Kashmir population. Therefore, prevention strategies should focus on public education and strict dog population control.**Keywords:** Dog Bite, Kashmir, Rabies

INTRODUCTION

Dog bites are a serious public health problem that inflicts considerable physical and emotional damage on victims and incurs immeasurable hidden costs to communities. It has become more and more apparent that dog bites are a serious and often underestimated public health problem in Kashmir. The aesthetic and psychosociological consequences of trauma caused by a dog bites repeatedly burden the quality of life of the affected persons and their family.¹Hence, dog bites represent a serious medical and public health issue. A recently carried out a dog census has found more than 91 thousand in Srinagar city alone. If we compare this with the human population, it makes 1 dog for every 12 people. The census data of dog population from other districts is not available yet.^{2,3}

MATERIALS AND METHODS

This retrospective study was conducted in department of Community Medicine of Government Medical College Srinagar, Kashmir and associated hospitals; a ter-

tiary care centre of Kashmir catering a population of about 70 lakh people.^{1,3} The major objectives of this study were to analyze the incidence, regional distribution, the injury pattern as well as the outcome of treatment in a series patients who sustained dog bites over period of three years and assessing the burden on society. Therefore, we evaluated retrospectively the charts of 13852 patients who sought medical assistance in Anti Rabies Clinic of our department as a result of dog-bite related injuries from April 2010 to May 2013. Patients' charts were analyzed for personal data, pattern and site of injury, clinical course and treatment received. The regional distributions of patients on basis of their area they come from were analyzed and monthly attending rate was calculated. The severity of the injury was categorized as per their class and distribution of sites involved was seen. The standard medical treatment of dog bites at our department consists of meticulous wound cleaning, anti rabies vaccination, immunoglobulin's and closure of gaping wounds.^{4,6} As 96% of reported injuries were by stray dogs so rabies vaccination was given to all. Surgical

closure was indicated when a firm wound closure without a suture was not possible. Patients with facial wounds or deep lacerations, wound drainage and/or systemic antibiotic treatment with either amoxicillin/clavulanate or cefuroxime/metronidazole was performed. All the patients were followed up until completion of vaccination and wound healing to document short-term results.

RESULTS

In this study, total of 13852 patients (68% males, 32% females) of all age groups were documented, mean age affected was 27.699±17.825 with 95% CI between 27.4 to 28. The highest affected group was less than 10 year-old children, with the number decreasing thereafter with age. A total of 22% of all affected patients were younger than 10 years. A seasonal fluctuation was detected: a majority of the persons were injured in the summer months, and peak incidence occurred during April.^{3,5} There was an almost equal distribution of dog attacks between the days of the week and 96% of them were by stray dogs and only 4% of cases by household pets. The maximum influx of cases (60%) was seen from Srinagar district only. Most (13298; 96%) of the patients had injuries to single body region; in the remaining (554,4%) of patients, up to three body regions were injured. Of 13852 injuries, the lower limbs was the leading site affected (46.5%) fig 2. followed by hand & feet (32%), upper limbs (9.5%) head and neck region (7%) and trunk/chest only 5%. Patients with injuries to the head and neck were seen predominantly younger compared with the total study population (below: 10 year) fig 1. A total of 10250 (74%) sustained severe wounds class III; 3394 (24.5%) victims presented with superficial scratches and minor laceration that is class II injury and only 208 case (1.5%) falls in class I category. All the documented patients received antirabies vaccine and immunoglobulin in about 96% of cases. Late follow-up was possible only in 3186 (23%) of patients who underwent surgical treatment after the dog attack.

Table 2: Age wise distribution of victims

Age range	No of victims (%)
0-10	3047 (22)
11-20	2217(16)
21-30	2632(19)
31-40	2355 (17)
41-50	1800(13)
51-60	1108 (8)
61-70	693(5)
Total	13852 (100)

Table 3 : Class of injury of the victims

Class	No. of Victims (%)
Class I	208(1.5)
Class II	3394(24.5)
Class III	10250(74)

The ARC of SMHS has registered 8 deaths due to rabies in three year period and all of the patients had history of dog bites without any intervention being done to them not even vaccination. Only two of these patients belong from Srinagar district rest from very remote areas of various districts. The actual data of rabies could be different in remote areas these were only registered as they came to tertiary care centre.



Fig. 1 Class III Injuries head



Fig. 2 class III bite on lower limb most common sites

Table 4: Distribution of victims on site of injury

Site of Bite	Number (%)
Head & Neck	969(7)
Trunk	693(5)
Upper Limb	1316(9.5)
Hands+Foot+Genitals	4433(32)
Lower Limb	6441(46.5)

Table 5: District wise distribution of victims

District	No of victims (%)
Anantnag	208(1.5)
Bandipora	1385(10)
Baramulla	623(4.5)
Budgam	1247(9)
Ganderbal	554(4)
Kulgam	69(0.5)
Kupwara	277(2)
Pulwama	485(3.5)
Srinagar	8312(60)
Others	692(5)

DISCUSSION

The present report covers dog bite analysis over a 3-year period in Kashmir region. There has been a significant overshoot of morbidity related to dog bites in valley, with proportionate increase in mortality due to ever threatening Rabies. Nevertheless, it is safe to say that dog bite injuries occur relatively frequently. They currently account for 0.2 percent of all emergency department visits, and 0.8 percent of injury-related visits.^{3,4,10} The total increase in cases of dog bites in region is significantly higher as compared with other published reports in India and outside Pradeep Umarigar et al¹⁰. The majority of the cases seen were children aging below ten years and about all of the cases were by stray dogs due to uncontrolled increased dog population and less public awareness. Unlike with previous publications, our data showed that the most common area targeted by dogs was below the pelvis and lower limbs, reflecting the unprovoked attacks of dogs on pedestrians. Death was caused either by multiple traumas or by injuries to the head and neck more in children due to the closer proximity of the child's head to the attacking dog⁶. Injuries to the face, head, and neck area occur more frequently in younger children. Scarring is a common consequence related to dog bites, and the resulting emotional distress due to cosmetic reasons, should not be underestimated, particularly for face wounds. Majority of the victims in our series reported prolonged emotional distress, including nightmares and subsequent augmented fear of dogs. The number of unreported cases of emotional distress likely is much higher than reported.⁷ Therefore, treatment strategies should include early psychological support considering the different trauma processing and coping strategies in children and their families. It wasn't always like this. Four years ago, animal rights campaigners forced authorities to stop the poisoning program they used to kill stray dogs. And now the dog population has exploded. Media reports in daily newspapers all the time are focusing the alarming increased aggressive behavior of dogs in valley. A recently carried out a dog census has found more than 91 thousand in Srinagar city alone.^{1,2,5} If we compare this with the human population, that makes 1 dog for every 12 people. "But other sources come up with an even higher number of 150,000 dogs in the city, which means 36 animals for every human resident.^{2,6} Even though authorities have demonstrated effectiveness of strategies to control rabies at the population level, such as post exposure prophylaxis in humans and animal birth control and immunization among dogs, are well known now a days but the population of dogs are exploding and the dog bites have become uncontrolled. The dog sterilization project has already cost the government much and the cost factor of vaccination of victims is adding to the toll. The WHO has suggested that dog-sterilization program would be successful only when carried on fast-track mode. The WHO standards rec-

ommend that around 70% of the dogs should be sterilized within three months of start of the process^{8,9}. And this, according to experts, is not logically possible in Srinagar given the huge number of stray packs and the fact that the process has already hit roadblocks.

CONCLUSION

Dog bites injuries in Kashmir are very frequent and dog population is increasing in alarming rates. Large numbers of dog attacks have taken place for the last couple of years Children who are younger than 10 years represent the high-risk group for dog attacks leading to alarming increase in anxiety disorders among children and directly or indirectly it influences the quality of life of Kashmir population. One has to be pro-active to control the menace of dogs, the number of those may exceed humans in Srinagar in coming years if we don't act now. Because few years ago animal rights campaigners forced authorities to stop the poisoning program to kill stray dogs. Therefore, prevention strategies should focus on public education and strict dog population control.

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