



Profile of dog bite cases reporting to an antirabies clinic in rhtc of a tertiary care institute in Kashmir: A cross sectional study

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Abstract

Background: Rabies is an acute viral encephalomyelitis caused by RNA Lyssavirus in virtually all the warm blooded animals including man. Dogs are the main host and transmitter of rabies in India. The disease is almost hundred percent fatal; however, by timely Post Exposure Prophylaxis (PEP), it can be easily prevented after the bite of an infected dog or other animal. The present study aims to assess the profile of dog bite cases reporting to Anti rabies Clinic (ARC) in Rural Health Training Centre of a Tertiary care Institute and their socio demographic correlates.

Methods: It was a cross sectional study conducted for a period of 6 months in Rural Health Training Centre of Department of Community Medicine, SKIMS, Kashmir. All the dogbite cases (170 cases) reporting to the ARC during this period were taken up for the study. Data was collected on a standard proforma – (National guidelines on Rabies Prophylaxis -2015) issued by National Centre for Disease Control (NCDC).

Results: In this study 71.8% of study subjects were males, 45.3 % were of school going age (5 to 19 years), 50.6 % were students and 42.4 % belonged to lower socioeconomic class. Also 76.5 % of study subjects had category II bite, 97 % reported to ARC within 24 hours of bite exposure and 93.5 % of dog bite victims who reported to ARC were managed as per recommended WHO Guidelines for that particular category of bite.

Conclusions: Despite the fact that the health seeking behaviour and treatment received by dog bite victims in this study were favourable, the menace of dog bite still poses to be a public health problem and measures to prevent the same need to be taken and timely policy decisions regarding this menace need to be made to curb this menace and, hence, control it.

Keywords: rabies, post exposure prophylaxis (PEP), rural health training centre (RHTC), anti-rabies clinic (ARC) and dog bite

Introduction

Rabies is an acute viral encephalomyelitis caused by RNA Lyssa virus belonging to Family Rhabdoviridae and causes disease in virtually all the warm blooded animals including man. Every year, an estimated 59 000 people die of rabies, one of the oldest and most terrifying diseases known to man ^[1]. The diseases is transmitted following a bite or scratch by an infected animal. Rabies occurs worldwide and on all continents except for Antarctica ^[2]. The vast majority of human deaths (up to 99%) are caused by the classical rabies virus transmitted by dogs ^[2]. Rabies is estimated to cause 59000 human deaths annually in over 150 countries, with 95 % of cases occurring in Africa and Asia. India accounts for 59.9 % of rabies deaths in Asia and 35 % of deaths globally ^[2]. Due to widespread under reporting and uncertain estimates, it is likely that this number is a gross underestimate of the true burden of disease. Disease burden is disproportionately borne by rural poor populations, with approximately half of cases attributable to children under 15 as they often play with animals and may not report bites or scratches received during play ^[3]. Rabies continues to be a major public health problem throughout India with the exception of two water logged islands i.e,

Andaman & Nicobar and Lakshadweep which are historically free of rabies. Dogs are the main host and transmitter of rabies in India. Other animals in India include cats, mongoose, monkeys and other warm blooded animals ^[3]. Rabies is almost hundred percent fatal, once symptoms are developed but timely Post Exposure Prophylaxis (PEP) can easily prevent it ^[3]. The dog population in India is estimated to be around 25 million, and most of them are not protected against Rabies ^[4]. The present study aimed to assess the profile of dog bite cases reporting to Antirabies Clinic (ARC) in Rural Health Training Centre (RHTC) of a Tertiary care Institute and their socio demographic correlates.

Methodology

It was a cross sectional study conducted over a period of 6 months (November 2018 to April 2019). The study was done in RHTC of Department of Community Medicine, SKIMS which is located in Health Block Hajin of district Ban dipora of Kashmir valley. All the dog bite cases which reported to the Anti Rabies Clinic of RHTC during this period of 6 months were taken up for the study.

The total no. of these cases were 170. Data was collected on a standard pro forma for dog bites reporting at an ARC provided in National guidelines on Rabies Prophylaxis -2015, National Centre for Disease Control (NCDC) [5]. Socioeconomic status of dog bite cases was assessed using Modified B G Prasad Socio Economic Classification-2018 [6]. Data analysis was done by using SPSS 20.

Operational definitions

1. School going age: For the purpose of study the 5-19 years age group was considered as School going age.
2. Bites were categorized as below waist (on legs, thighs and buttocks), above waist (on trunk, shoulders & upper limbs) and those on Head & Neck.

Results

Out of total 170 dog bite cases, 71.8 % were males (n=122) compared to 28.2 % of females (n=48) with a Male: Female ratio of 2.55: 1. Majority (45.3 %) of dog bite victims were children of school going age (5 to 19 years). On assessing the occupation of dog bite cases, majority of study subjects (50.6 %) were students. Socioeconomic status of study subjects using Modified B G Prasad Classification 2018 revealed that most of them, 42.4 % belonged to lower socioeconomic class with only 2.9 % belonging to upper SE class. (Table 1)

Table 1: Socio demographic Characteristics of Dog Bite Victims

		Frequency	Percentage
Age Group	Under 5 (< 5 Yrs)	12	7.1
	School Going Children (5 to 19 Yrs)	77	45.3
	Adults (20 to 59 yrs)	75	44.1
	Elderly (60 yrs & above)	6	3.5
	Total	170	100.0
Occupation	Unemployed	31	18.2
	Self-Employed	45	26.5
	Govt. Employee	8	4.7
	Student	86	50.6
	Total	170	100.0
Se Class	Upper	5	2.9
	Upper Middle	13	7.6
	Middle	11	6.5
	Lower Middle	69	40.6
	Lower	72	42.4
	Total	170	100.0

97.1 % of dog bites (n=165) occurred on streets, outside the victim's homes in comparison to only 2.9 % of bites (n=5) which occurred inside homes. Regarding site of bite, majority (85.3 %) of dog bites were found to be below waist (on legs, thighs & buttocks). It was also observed that most (41.2 %) of dog bite cases occurred in morning

Hours (5am to 12 noon). The table also depicts that 80.6 % of bites (n=137) were unprovoked in comparison to 19.4% of bites (n=33) which were provoked. Regarding the WHO Bite category majority (76.5 %) of dog bites were Category II and almost all, 98.2 % of dog bite cases washed their wound with soap & water. (Table 2).

Table 2: Distribution of Bites and Health Seeking Behaviour of Victims after Bite

		Frequency	Percent
Site OF Bite	Head & Neck	2	1.2
	Above waist	23	13.5
	Below waist	145	85.3
	Total	170	100.0
Time of Bite	Morning	70	41.2
	Afternoon	56	32.9
	Evening	44	25.9
	Total	170	100.0
Category of Bite	I	6	3.5
	II	130	76.5
	III	34	20.0
	Total	170	100.0
Remedy Taken at Home	None	1	.6
	Washed wound with water	2	1.2
	Washed wound with soap & water	167	98.2
	Total	170	100.0

It was also found that 97.05 % of dog bite cases (n=165) reported to ARC within 24 hours of bite exposure compared to 2.95 % of those (n=5) who reported late after 24hours. The study also showed out of a total 170 cases, 167 Dog bites (98.2 %) were due

to stray dogs and only 3 (1.8 %) were due to pet dogs.

Majority (93.5 %) of dog bite cases were vaccinated as per WHO recommended guidelines and Intramuscular regime was followed in most (87.6 %) of dog bite victims. (Table 3)

Table 3: Treatment Received At Arc and Vaccination Schedule Followed

		Frequency	Percent
Treatment Received at arc	Vaccinated as per WHO guidelines	159	93.5
	WHO guidelines not followed	11	6.5
	Total	170	100.0
Vaccination Regime Followed at arc	IM	149	87.6
	ID	21	12.4
	Total	170	100.0

Regarding Anti Rabies Vaccination status, 97.1 % of dog bite cases (n=165) received complete course of ARV compared to 2.9 % of cases (n=5) who received only 1st dose of ARV.

Discussion

The menace of dog bite is an all-time public health concern and efforts to deal with it should never stop till we curb this menace. Our study revealed a male predominance (71.8 %) of study subjects which was also seen in majority of other studies viz Acharya R *et al.* ((76.36%)^[7], Syed Najmul Ain *et al* (76 %) ^[8] and Dr. Sachin Patil *et al* (75.8%)^[9], the reason might be that males move outdoors for work more often as compared to females. The most common age group of dog bite cases in our study was 5 to 19 years (45.3 %) while elderly comprised only 3.5 % of the cases, which might be because of childrens' inherent fondness to animals, their tendency to provoke them and also their inability to defend themselves against the attack by dogs, while as elderly being mainly confined to their homes are spared of this menace. Some what similar results were found in a study by Sangeetha S *et al.* with 33.87 % of dog bite cases in age group of 5 to 25y and 4 % as elderly ^[10]. A study by Acharya R *et al* also reported children aged 20y & below as the commonest age group of dog bite cases being ^[7]. In our study majority (50.6%) of study subjects were students, thereby depicting better education standard of study population, which is in contrary to a study by Sangeetha S *et al.* in which only 5.8 % of study subjects were students ^[10]. The majority of dog bite victims in our study belonged to lower (42.4%) and lower middle (40.6%) SE class with similar results found in a study by Syed Najmul Ain *et al* wherein 44% of the cases were from the upper lower class ^[8], furthermore a study by Sangeetha S *et al* also found 41.6% of cases belonging to lower upper SE class ^[10]; hence reflecting the increased need of care to be provided to this SE class. In our study it was observed that 97.1% of dog bites had occurred on streets around the homes of victims and similar observations with some lower percentage were made by Venkatesan *et al* (70.5%) ^[11] and Shefalee Pai Vernekar *et al* (66.7%) ^[12]; the reason for this may be simply due to increased dog human contact on streets following various daily outdoor human activities. The site of bite in majority (85.3%) of our study subjects was below waist line (buttocks & lower limbs) and somewhat similar findings were noticed in studies by Venkatesan *et al* (lower limb - 53.5%) ^[11] and Shefalee Pai Vernekar *et al* (Lower limb - 66.7%) ^[12], lower limbs being easily accessible to dogs for biting.

In our study 80.6% of dog bites were unprovoked and the same fact was seen in studies by Dr. Sachin Patil *et al* (80.6%) ^[9] and Venkatesan *et al* (78.1%) ^[11]; most of the times behaviours not generally regarded as provoking may be interpreted by a dog as invasion of territory and may incite an attack. Our study revealed that majority (76.5%) of bites were Category II and same predominance of Category II bites was also seen in other studies by Modi *et al* (85.94%) ^[13], Sangeetha S *et al* (76.81%) ^[10], Varsharani *et al* (67.26%) ^[14] and Tiwari *et al* (60.47%) ^[15]. Awareness about first aid measures taken for local wound management was optimal in our study subjects, usually imparted to them in various field awareness programmes. This got reflected in our study where a striking 98.2 % of dog bite victims washed their wound with soap & water before reporting to ARC, which is in contrast to other studies where this percentage was very less; Shefalee Pai Vernekar *et al* (38.9%) ^[12], Venkatesan *et al* (36.1%) ^[11] Ayan Ghosh *et al* (33.33%) ^[16], and Umarigar P *et al* (31.2%) ^[17]. Our study also revealed that 97% of dog bite victims reported to ARC within 24 hours of bite exposure, more or less similar results were seen in a study by Syed Najmul Ain *et al* (76 %) ^[8], Sangeetha S *et al* (73.9%) ^[10] and Umarigar P *et al* (71.21%) ^[17], thus again reflecting the better awareness in our study subjects regarding the management of dog bites. However in other studies by SM Salim Khan *et al* only 52.94% of dog bites reported to ARC within 24 hours ^[18] with same results found in the study by Dr. Sachin Patil *et al* (52.1%) ^[9]. In our study it was found that majority of Dog bites (98.2 %) were due to stray dogs which is in accordance with results of most of the studies; SM Salim Khan *et al* (97.19%) ^[18], Sideeq Ket *al* (96 %) ^[19], Umarigar P *et al* (93.3%) ^[17], Acharya R *et al.* ((76.33%)^[7] and Karthik C *et al.* (64.7%) ^[20], thus highlighting the fact of increasing number of stray dog population in our community. Our study also showed that 93.5 % of dog bite cases were managed as per WHO recommended guidelines (received appropriate vaccination & RIG as per their category of exposure), similar results were also seen in other studies; Umarigar P *et al* (97%) ^[17], Sideeq Ket *al* (96 %) ^[19] and Venkatesan *et al* (70.4%) ^[11]. Regarding Anti Rabies Vaccination status, 97.1 % of Dog bite cases in our study received complete course of ARV (all the doses), reflecting the awareness and motivation provided to the victims of dog bites by our health care workers; however this percentage was found lower in other studies by Shefalee Pai Vernekar *et al* (66.7%) ^[12], Sangeetha S *et al* (60.61%) ^[10] and Venkatesan *et al* (51.5%) ^[11].

Conclusion

The observations made in our study were in accordance with most of other studies.

Our study revealed male preponderance of study subjects, most of the study subjects were falling in the age group of 5 to 19 years with majority of study subjects being students and study subjects mostly belonged to lower socioeconomic class. Also majority of study subjects had Category II bite exposure and reported to ARC within 24 hours of bite exposure. Despite the fact that the health seeking behaviour and treatment received by dogbite victims in this study were favourable, the menace of dog bite still poses to be a public health problem and measures to prevent the same need to be taken and timely policy decisions regarding this menace need to be made to curb this menace and hence control it.

Recommendations

As children fall main prey to this menace of dog bites parents should be advised to take care of their children and should make sure that they play in safe areas. Proper disposal of waste should be strictly ensured as most of the bites were by stray dogs with their number increasing alarmingly overall and in particular in this part of country. Robust system of garbage collection & disposal should be set up in order to abolish the breeding places of these stray dogs which pose an all-time threat to human population. Development of dog bite prevention program as a part of school health program can increase awareness in masses. In a country with very high population of unvaccinated dogs, health education program focusing on prevention of dog bites, correct methods of local wound treatment, vaccine, and rabies immuno globulins are needed on priority basis both at individual and community level. In this part of globe animal rights campaigners forced authorities to stop the poisoning program to kill stray dogs. Therefore preventive strategies should focus mainly on public awareness and strict dog population control. Besides this continuous supply of free Anti Rabies Vaccines and RIGs at most of the Anti Rabies Clinics existing at different levels of public health care should be ensured as most of the Category III bites in our study were referred to ARC of tertiary care level for administration of RIG. Prompt Implementation of National Rabies Control Programme (NRCPP) in this part of country to be suggested to Government.

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