



AN EPIDEMIOLOGICAL STUDY OF DOG BITE CASES, ATTENDING ANTI-RABIES CLINIC OF A TERTIARY CARE HOSPITAL, BHOPAL

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ABSTRACT

Background: Rabies is a zoonotic disease of major public health importance. In India almost 20,000 people die each year from rabies. Most of these deaths could be prevented by post exposure prophylaxis.

Objectives: 1) To study the socio-demographic characteristics of dog bite cases reported to Antirabies clinic in Hamidia Hospital, Bhopal. 2) To study the delay in reporting of cases to the clinic.

Material & Methods: This was an observational record based study carried out at Anti Rabies Clinic (ARC) of Hamidia Hospital Bhopal for a period of 6 months. All cases for zero dose of Dog bite attending the ARC were included in the study.

Results: Out of 2700 cases of animal bite, maximum cases 1988 (73.6%) cases of victims were male and 1390 (51.4%) were below 20 years of age. 1931 (71.5%) cases were of category III bite. 1530 (56.7%) of dog bite cases reported to ARC within 24 hrs of bite for receiving post exposure prophylaxis.

Conclusion: Animal bites, especially dog bites still poses public health problem, the problem was much prevalent in pediatric age group. Category III exposure was seen in majority of the cases. Even at tertiary care Centre, quality of primary wound management and post exposure prophylaxis was compromised.

KEYWORDS : Rabies, Anti-Rabies Vaccination, post exposure prophylaxis.

INTRODUCTION

Rabies, an acute infectious, viral zoonotic disease, is almost always a fatal infection.¹ Rabid dog is the source of 99% of human infections, although it may spread via a number of carnivorous such as dogs, cats, jackals and wolves; also cats, skunks, raccoons, mongooses, bats and other biting animals.^{1,2} Its transmission to human or other animals occurs through saliva, bites, scratches, licks on broken skin and/or mucous membrane of infected animals.^{3,4}

Rabies affecting more than 150 countries and territories is a vaccine-preventable viral disease.³ Immediate treatment of bite victim after rabies exposure is Post-exposure prophylaxis (PEP). Timely and complete treatment soon after exposure is necessary to prevent the onset of symptoms and death as those not completing the course of vaccination are still at risk of developing the disease.^{3,5} Around 40% of children aged 5-14 yrs (mainly from Asia and Africa) receive PEP, of which majority are males.⁶

Rabies is an important public health problem worldwide.⁷ It is one of the neglected tropical disease affecting mostly poor and vulnerable populations residing in remote rural locations.³ India contributes 16,450 (27%) out of 61,000 globally reported deaths due to rabies.⁸ Except for Lakshadweep, Andaman and Nicobar islands, rabies is prevalent in all parts of India.⁸ Estimated 19 million stray dogs in India account for their highest population in the world.²

A global "United Against Rabies" collaboration has been established under WHO, the World Organisation for Animal Health (OIE), the Food and Agriculture Organization of the United Nations (FAO) and the Global Alliance for Rabies Control (GARC) to provide a common strategy to achieve "Zero human rabies deaths by 2030".³

Absence of reliable data on rabies is owing to unavailability of organized surveillance system.³

This study was carried out with the objectives to explore epidemiological factors associated with dog bite cases reporting at ARC Hamidia Hospital, Bhopal and to study the delay in reporting of cases to the clinic.

MATERIALS AND METHODS

An observational record based study was conducted in the

Anti Rabies Clinic (ARC) of Hamidia Hospital, Bhopal for a period of 6 months, where post-exposure prophylaxis was provided as Intradermal Rabies Vaccination (Updated Thai Red Cross regimen). The records maintained at ARC under Department of Community Medicine from the month of April to September 2017 were analyzed. All cases for zero dose of Dog bite attending the ARC were included in the study. Cases with inadequate information in the records were excluded.

Permission was taken from the authorities to conduct the study. On record basis, all relevant data such as socio-demographic profile of animal bite victims, time interval between the animal bite and patient reaching the hospital and categories of contact were collected, constituting a total of 2700 study subjects. Data was entered in MS Excel and analysis was done using Epi info.

RESULTS

Table 1 show various variables recorded. It shows that males were predominantly affected, constituting 1988 (73.6 %) of total cases while females were less affected i.e. only 712 (26.4 %). It also signifies that around half i.e. 51.4 % animal bite cases were aged less than 20 yrs followed by 18.9 % cases between the age group of more than 20 yrs to less than 30 yrs, 10.3 % cases between the age group of more than 30 yrs to less than 40 yrs and 9.7 % cases between the age group of more than 40 yrs to less than 50 yrs. While cases above the age of 50 yrs were reported to be 9.7 % only. Distribution of animal bite cases according to the reporting at ARV clinic after the bite is displayed, where maximum (56.7 %) cases reported within 24 hours of bite, 20.9 % reported within 48 hrs and 9.7 % reported within 72 hrs. While around 12.7 % of bite cases reported after 72 hrs of exposure.

Figure 1 illustrates monthly variation in animal bite cases reported at ARV clinic based on gender of the cases. Majority were reported during June, May, July and April with 18.1 %, 17.9 %, 17.8 % and 17.7 % of the total cases respectively with more number of males affected. While in August minimum number of cases (13.2 %) were reported.

Table 2 highlights the monthly distribution of cases reported at ARV clinic with different categories of animal bite. Major proportion of cases i.e. 1931 (71.5 %) were of category III bite

followed by category II (14.6 %) and category I (13.9%). Category III bites were maximally reported in June while only 9 % cases reported in the month of August.

Lastly, following discussion with ARV clinic in-charge, it was found that more than 80% cases didn't know the first aid of animal bite (dog) and applied lime or chilly locally over the wound.

Table 1: Distribution Of Cases As Per Various Variables Obtained From The Records At ARV Clinic

S.No.	Variables	Frequency (n=2700)	Percentage (%)
1	Sex		
	Male	1988	73.6
	Female	712	26.4
2	Age		
	< 10 yrs	638	23.6
	≥ 10 - <20 yrs	752	27.8
	≥ 20 - <30 yrs	511	18.9
	≥ 30 - <40 yrs	278	10.3
	≥ 40 - <50 yrs	262	09.7
	≥ 50 - <60 yrs	115	04.3
	≥ 60 yrs	144	05.4
3	Delay in reporting to ARV clinic after the bite		
	0 to 24 hours	1530	56.7%
	>24 to 48 hours	565	20.9
	>48 to 72 hours	262	9.7
	>72 to 96 hours	110	4.1
	>96 hours	233	8.6

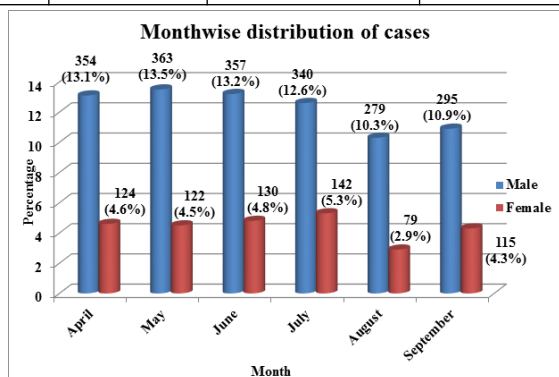


Figure 1: Month-wise And Gender-wise Distribution Of Dog Bite Cases Reporting At ARV Clinic

Table 2: Category-wise Distribution Of Dog Bite Cases Reporting At ARV Clinic

S. No.	Month	Cat I		Cat II		Cat III		Total	
		No.	%	No.	%	No.	%	No.	%
1	April	47	1.7	69	2.6	362	13.4	478	17.7
2	May	71	2.6	104	3.8	310	11.5	485	17.9
3	June	37	1.4	48	1.8	402	14.9	487	18.1
4	July	57	2.1	110	4.1	315	11.6	482	17.8
5	August	86	3.2	29	1.1	243	9.0	358	13.2
6	September	77	2.9	34	1.2	299	11.1	410	15.2
	Total	375	13.9	394	14.6	1931	71.5	2700	100

DISCUSSION

In our study, we found that the males were affected more than females. Similar finding was reported in studies conducted by Patel at al (2015)² found 74.50% were male, Jain M et al (2014)¹⁰ observed that 76.35% were males, Sajna MV at al (2013)⁵ concluded that majority (63.4%) of the victims were males, also in study conducted by Umrigar P at al (2012)⁴ 83% males were affected. The reason could be explained on the basis of more outdoor activities by males.

Present study revealed that most commonly affected age

group following animal bite was below 20 years of age. This finding corroborated with other studies as well, Patel at al (2015)² found majority (34.58%) cases were below 15 years of age, Jain M et al (2014)¹⁰ observed that 14.94% cases aged 0-10 yrs and 23.45% cases aged 11-20 years, thus constituting 38.39% cases below the age of 20 years. Study conducted by Sajna MV at al (2013)⁵ also concluded that 35.7% cases occurred below 15 years of age.

Another finding of the study is that most of the animal bites were of category III. Patel at al (2015)², Jain M et al (2014)¹⁰ and Sajna MV at al (2013)⁵ also observed similar findings. While in Umrigar P at al (2012)⁴, it was seen that more (54 %) cases of category II bite were reported.

Most of the cases (56.7%) reported within 24 hours following the bite. Similar finding was reported in studies conducted by Patel at al (2015)² with 47.33%, Jain M et al (2014)¹⁰ 64.94%, Umrigar P at al (2012)⁴ with 98.6% reporting within 24 hours of exposure.

CONCLUSION

The results showed that animal bites, especially dog bites still poses public health problem, the problem was much prevalent in pediatric age group. Category III exposure was seen in majority of the cases. Interventional programs, such as limitation of stray dogs, vaccination of dogs and increasing public awareness are essential.

Also recording criteria needs improvement.

Limitations: Record based study, can't generalize, lack of data related to compliance of complete vaccination, pretreatment modalities adapted by patients could not be registered.

REFERENCES

1. Park K. Park's textbook of preventive and social medicine. 23rd ed. Jabalpur: Banarasidas Bhanot Publishers; 2015. Chapter 5, Epidemiology of communicable diseases; p.27681.
2. Patel S, Toppo M, Lodha R. An epidemiological study of animal bite cases in a tertiary care center of Bhopal city: A cross-sectional study. Int J Med Sci Public Health 2017;6(3):539-543
3. WHO Official site- <http://www.who.int/mediacentre/factsheets/fs099/en/>
4. Umrigar P, Parmar GB, Patel PB, Bansal RK. Epidemiology of Animal Bite Cases attending Municipal Tertiary Care Centres in Surat City: A Cross Sectional Study. Natl J Community Med 2013; 4(1): 153-7
5. Sajna MV, Culas R. Cost Analysis of Post Exposure Prophylaxis of Rabies in A Tertiary Care Centre - A Cross Sectional Study. IOSR-JDMS. 2014; 13(12): 08-12
6. World Health Organization. WHO expert consultation on rabies-second report [Internet]. 2013 [cited 2016 Feb 10]. Available from: http://apps.who.int/iris/bitstream/10665/85346/1/9789240690943_eng.pdf?ua=1
7. Meslin FX, Briggs D. Eliminating canine rabies, the principal source of human infection: what will it take? Antiviral Res 2013;98:291-6
8. APCRI guidelines for rabies prophylaxis. Available at <http://rabies.org.in/rabies/wp-content/uploads/2009/11/APCRI-Guidelines-for-Rabies-Prophylaxis.pdf>. Accessed on November 22nd, 2012
9. Ichhpujani R.L et al: Rabies in humans in India. 4th International Symposium on rabies control in Asia. Symposium proceedings Merieux Foundation & WHO. Ed. Betty Dodet & F. X. Meslin, 2001, Hanoi, Vietnam. John Libbey, Eurotext, London
10. Jain M, Prakash R, Garg K, Jain R, Choudhary M. Epidemiology of animal bite cases attending anti-rabies clinic of a Tertiary Care Centre in Southern Rajasthan. J Res Med Den Sci 2015;3(1):79-82.