

Clinico-social Profile of Animal Bite Cases Attending Tertiary Care Teaching Hospital in Maharashtra, India

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Abstract

Introduction: Rabies is primarily a communicable zoonotic disease of warm blooded animals particularly carnivores, such as dogs, cats, jackals & wolves. It is an acute highly viral disease which affects the central nervous system. It is the only communicable disease of man that is always fatal.

Objective: To study the clinico-social profile of animal bite cases attending tertiary care teaching hospital in Maharashtra.

Method: A hospital based observational descriptive study was conducted amongst 6050 patients of animal bite coming to the ARV OPD from 1st January 2014 to 31st December 2014 in tertiary care teaching hospital in Maharashtra.

Results: In the present study, majority cases 3467(57.3%) were males, 2843 (47%) were in the age group of 21 to 40 years. There were 4647(76.8%) unprovoked, 4127(68.2%) category III and 4780(79%) by non-observable animals bites. Most common site 4962(82%) was extremities. Maximum 2602(43%) cases reported to ARV OPD within 24 hours of animal bite. Only 320(5.3%) cases have taken proper wound care (washing with water and soap) as compared to 3206 (53%) cases who had taken no home management for wound care. Active immunization (anti-rabies vaccine) was administered to 6001(99.2%) of cases and passive immunization with anti-rabies serum (ARS) was advised in all 4126(68.2%) of category III patients.

Conclusion: Study concludes that patients should be made aware of immediate reporting of animal bites, importance of proper care of wound and necessity of taking ARV and ARS. Information, Education and Communication activities should be facilitated to promote public awareness about the prevention and treatment of animal bite cases.

Key words: Animal bite, clinic-social profile, tertiary care teaching hospital.

Introduction

Rabies has terrified man since antiquity and continuous to be a major public health problem in India. It is an ancient disease as old as human beings. It is primarily a communicable zoonotic disease of warm

blooded animals particularly carnivores, such as dogs, cats, jackals & wolves. It is also known as Hydrophobia. It is an acute highly viral disease which affects the central nervous system. It is the only communicable disease of man that is always fatal. The first description of the disease dates from the 23rd century BC. Virus was isolated in 1885 by Dr. Louis Pasteur; he then developed the first rabies vaccine. Rabies is a global problem. Human deaths are about 60,000 per year worldwide. Globally each year 10 million people require post exposure treatment. Some countries have achieved "Rabies Free" status by vigorous campaign

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of elimination, while in others disease has never been introduced. Water appears to be the most effective natural barrier to rabies.^[1] Canine rabies continues to exist in 87 countries or territories of the world and these accounts for 99 % of all human rabies cases.^[2]

Approximately 35,000 to 40,000 human deaths occur due to rabies each year in the countries of South East Asian region (SEAR). Maldives is the only country in the region which does not have human (or) animal rabies. Two countries Bangladesh, India belongs to high incidence category. It occurs in all parts of India, except Lakshadweep, Andaman & Nicobar Islands. Every year approximately 1.1 to 1.5 million people receive post exposure treatment. More than 95% cases are due to dog bites. Dog population in India is around 25 million & most of them are not protected against rabies.^[3] Hence this study was carried out to study the clinico-social profile of animal bite cases attending tertiary care teaching hospital in Maharashtra.

Material & Method

Study design: This study was a hospital based observational descriptive study.

Study area: The study was undertaken in anti-rabies vaccination (ARV) outpatient (OPD) department of tertiary care teaching hospital in Maharashtra.

Study period: The study period was one year i.e. from 01st January 2014 to 31st December 2014.

Study Sample: In this study, all 6050 patients of animal bite (who fulfils the exclusion criteria) coming to the ARV OPD during study period were enrolled for the study.

Data collection: After explaining the purpose of study and obtaining verbal informed consent from the patients, they were interviewed with the help of preformed structured questionnaire and clinical examination was done during OPD hours from 9-12 noon and during Sunday and other government holidays between 9-10 am in ARV OPD. Data was collected in ARV OPD up to the end of study period. The study was approved by the Institutional Ethics Committee. All the patients were subjected to clinico-social profile and detailed history about type of bites including site, duration, category of exposure, wound toilet, treatment including both active

and passive immunization was taken. History regarding home management of wound before coming to ARV OPD was elicited from animal bite patients like application of oils, salt, alum, lime, chilli powder, turmeric powder, antiseptic solution and washing wound with water and soap was inquired. Throughout the study anonymity of all patients was maintained and privacy as well as confidentiality of the data was assured. Categoriation of exposure was done as per the guidelines given by World Health Organization (WHO).^[4] A bite was considered as provoked, if it resulted from patient initiating interaction with the animal such as playing with them or annoying them during their meal.

Exclusion Criteria: Patients who came for pre-exposure prophylaxis, medico-legal cases and human bite cases were not included in the study.

Data Analysis: Records of all patients were studied and data regarding their clinico-social profile was analyzed. Data was entered in Microsoft excel sheet and it was analyzed with Epi info software. Statistical analysis was done by using simple proportions and percentages whenever necessary.

Results

Table 1: Age and gender wise distribution of study population

Age (in years)	Male	Female	Total	Percentage
≤ 10	525	382	907	15.0
11-20	403	323	726	12.0
21-30	1120	816	1936	32.0
31-40	497	410	907	15.0
41-50	434	354	788	13.0
51-60	348	136	484	08.0
≥ 61	140	162	302	05.0
Total	3467	2583	6050	100

It was observed from **Table 1** that out of 6050 cases of animal bites reported at ARV OPD during the study

period, more than half 3467(57.3%) were males and 2583(42.7%) were females. Majority 1936(32%) cases were in the age group of 21-30 years, followed by 1695(28%) were in the age group of 31-50 years, 1633(27%) were in the age group of 0-20 years and 786(13%) cases were the above 50 years.

Table 2: Clinoco-social profile of the study population

Clinoco-social profile	Number (n=6050)	Percentage
Category of exposure		
Cat- I	48	0.8
Cat- II	1875	31.0
Cat- III	4127	68.2
Site of bite		
Extremities	4962	82.0
Trunk	423	07.0
Head, Neck, Face	665	11.0
Provocation		
Provoked	1403	23.2
Unprovoked	4647	76.8
Animal observe		
Observable	1270	21.0
Non-observable	4780	79.0
Time of reporting to ARV OPD		
<24 hrs	2602	43.0
1-3 days	2359	39.0
4-10 days	847	14.0
>10 days	242	04.0

It was seen from **Table 2** that majority 4127(68.2%) cases were of category III, while 1875(31%) cases of category II and 48(0.8%) cases of category I. Most common site of animal bite was the Extremities which accounted for 4962(82%) of cases. Unprovoked bites were seen in 4647(76.8%) cases, whereas provoked bites were seen in 1403(23.2%) cases. Majority 4780(79%) cases belonged to non-observable, while 1270(21%)

belonged to observable animal bites. Majority 2602(43%) cases reported to ARV OPD within 24 hours followed by 2359(39%) cases reported in 1-3 days, 847(14%) cases reported in 4-10 days and 242(04%) cases reported after 10 days of animal bite.

Table 3: Distribution of cases according to the home management of wound before coming to ARV OPD

Home management of wound	Number	Percentage
No home management	3206	53.0
Lime	2305	38.1
Washed with water	810	13.4
Washed with water and soap	320	5.3
Turmeric powder	726	12.0
Antiseptic	187	3.1
Chilli powder	943	15.6
Other (salt, oil, alum)	2178	36.0

It was observed from **Table 3** that 3206(53%) of patients did no management before coming to ARV OPD. In home management, majority 2305(38.1%) patients have applied lime, followed by 2178(36%) used other things like salt, oil, alum etc. While 943(15.6%) patients used chilli powder and 320(5.3%) patients used water and soap for cleaning the wound and a very few 187(3.1%) used antiseptics.

Table 4: Distribution of cases according to hospital management of animal bite

Hospital management	Number	Percentage
Wound toilet after bite	4961	82
Injection tetanus toxoid (TT)	6001	99.2
Anti-rabies vaccination (ARV)	6001	99.2
Anti-rabies serum (ARS)	4126	68.2

Distribution of cases according to hospital management of animal bite is shown in **Table 4**. Wound toileting in ARV OPD was done in 4961(82%) cases while active immunization (anti rabies vaccine) and injection tetanus toxoid (TT) was administered to 6001(99.2%) of cases and passive immunization with anti-rabies serum (ARS) was advised in all 4126(68.2%) of category III patients.

Discussion

Animal bites mainly dog bites lead to a highly fatal still preventable disease called Rabies. In the present study, majority of the cases 3467(57.3%) were males as seen in study of Shah L et al[4] and explanation of which lies in the fact that men are more exposed to outdoor chores as compared to women. Study done by Sudarshan et al^[5] also showed males were more affected (68%) than female (31.7%). In a study by Ichhpujani RL et al^[6], it was seen that children are the most frequent victim of

dog bite, contrary to this we found that majority of the cases 2843(47%) were in the age group of 21 to 40 years. Unprovoked 4647(76.8%), category III 4127(68.2%) bites by non-observable animals 4780(79%) accounted for most of the cases. Most common site involved in these cases was found to be extremities 4962(82%), which is in accordance with findings of other studies.^[7-8] In our study, majority 2602(43%) of the cases reported to ARV OPD within 24 hours of the animal bite followed by 2359 (39%) cases reporting in 1-3 days, 847 (14%) cases reporting in 4-10 days and 242 (04%) cases reporting after 10 days of animal bite. Similarly study done by Sridhar PV et al^[9] also gave similar findings i.e. (43.6%) patients reported on the same day of bite and 576 (33.4%) reported on the next day.

In the present study, large number of cases 3206(53%) had taken no home management for wound care, similar findings were observed in various studies^[10-13], while only 320(5.3%) cases have taken proper wound care (i.e. washing with water and soap). Similar type of observation was found in study done by Borkar A et al.^[14] In home management, majority 2305(38.1%) patients have applied lime, followed by 2178(36%) used other things like salt, oil, alum etc on bite site, while 943(15.6%) patients used indigenous product like chilli powder. A common perception is that local irritability produced by these substances would destroy the rabies virus in the wound. In the present study, active immunization (anti rabies vaccine) and injection tetanus toxoid (TT) was administered to 6001(99.2%) of cases and passive immunization with anti-rabies serum (ARS) was advised in all 4126(68.2%) of category III patients. Similar type of finding was observed in a study done by Borkar A et al.^[14]

Conclusion

This study highlights the importance of clinico-social factors looking into the in-depth analysis of animal bite cases. The facilities made available at the ARV OPD of the tertiary care hospital for the management and care of animal bite cases shall go a long way in gaining long lasting impact on curbing the menace of animal bite & associated illnesses among people. Our study findings suggests that the majority of the patients should be made aware of immediate reporting of animal bites, importance of proper care of wound and necessity

of taking ARV and ARS. Information, Education and Communication (IEC) activities should be facilitated to promote public awareness about the prevention and treatment of animal bite cases.

Ethical approval: The study was approved by the Institutional Ethics Committee

Source of Funding- Nil

Conflict of Interest – None declared

References

1. Park K, Park's Textbook of Preventive & Social Medicine, 25th edition, Jabalpur, India: M/s Banarasidas Bhanot publishers; 2019 February pg.302-306.
2. Gadekar R, Dhekale DN. Profile of Animal Bite Cases in Nanded District of Maharashtra State, India. Indian Journal of Fundamental and Applied Life Sciences 2011;1(3):188-93
3. Shah L, Bala DV, Thakker J, Dalal A, Shah U, Chauhan S et al. Epidemiological determinants of animal bite cases attending the antirabies clinic at V S General Hospital, Ahmedabad. Healthline 2012;3(1):66-68
4. World Health Organization. WHO technical report series 931: WHO expert consultation on rabies; first report. Geneva Switzerland, WHO. 2005;13
5. Sudarshan MK, Mahendra BJ, Madhusudana SN, Gangaboraiah. An Epidemiological study of animal bites in India. Results of a WHO sponsored national multi centric rabies survey. J Commun Dis. 2006;38(1):32-39
6. Ichhapujani RL, Mala C, Veena M, Singh J, Bhardwaj M, Bhattacharya Det al. Epidemiology of animal bites and rabies cases in India- A multicentric study. J Commun Dis. 2008;40(1):27-36
7. Anita K, Meena GS, Malti M. Profile of dog bite cases attending MCD dispensary at Alipur, Delhi. Indian J Community Med 2003;28(4):157-60
8. Cláudia Castro Carvalho, Barbara Tereza Fonseca da Silva. Epidemiological characteristics of dog bite accidents attended at a basic health unit in northeast Brazil. Revista Brasileira em Promoção da Saúde 2007;4:32-35.
9. Sridhar PV, Vinay M, Anil Kumar K. Profile of

- children bitten by dogs, reporting to a government tertiary care hospital and their compliance to post exposure prophylaxis. *JEMDS*. 2014;3(43):10673-78
10. Shetty RA, Chaturvedi S, Singh Z. Profile of animal bite cases in Pune. *J Commun Dis*. 2005;37(1):66-72
 11. Agarwal N, Reddajah VP. Epidemiology of dog bites: a community-based study in India. *Trop Doct* 2004;34(2):76-78
 12. Behera TR, Satapathy DM, Tripathy RM, Sahu A. Profile of Animal bite cases attending the ARC of M.K.C.G. Medical Collage. *APCRI* 2008;9(2):35-38
 13. Renu Bedi, Bedi DK, Tankha A, Choudhary V, Matoria RS. Profile of Animal Bite Cases Attending Anti Rabies Clinic of J.L.N. Medical College & Hospital, Ajmer. *APCRI* 2007;8(1):17-20
 14. Borkar A, Deshmukh N, Khakse G. Epidemiology of Animal Bite Cases Reported to Anti-Rabies Vaccination Clinic, at a Tertiary Care Hospital, in Tribal Area. *Indian Journal of Applied Research*. 2014;4(9):426-28