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AN EPIDEMIOLOGICAL STUDY OF ANIMAL BITE CASES ATTENDING TO ARV OPD IN TERTIARY CARE HOSPITAL, MAHARASHTRA.

Community Medicine

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ABSTRACT

Background– Rabies is 100% fatal, 100% vaccine preventable disease, yet continues to kill.Among animal bite cases, Dog bites are the primary source of infection to humans in all rabies endemic countries and accounts for 95% of rabies cases in South East Asia region.Rabies is 10th biggest cause of death due to infectious disease worldwide. **Objective** – To study Socio-demographic profile of patients attending ARV OPD. To Classify animal bite patients according to category. To study compliance of patients attending ARV OPD. **Methodology:** Study was conducted in Govt. Medical College & Hospital, Solapur, Maharashtra. Hospital based cross sectional study was carried out on patients attending to ARV OPD. Total 932 patients during study period in ARV OPD. **Results:** A total of 932 patients were interviewed and examined in ARV OPD during study period. Most commonly affected age group was between 15 to 44 yrs. Males were affected more as compared to females. Dogs (88.41%) were the main biting animals. 88.51 % case were of category III as per the WHO classification. **Conclusion:** It is necessary to improve Knowledge level in community about the immediate cleaning of wound. The civic authorities need to resort to control stray dog population. Also owners of pet animals need to encourage about vaccination of their pet.

KEYWORDS

ARV OPD, Tertiary hospital, Animal bite.

INTRODUCTION-

Rabies is a zoonotic disease with 100% fatality and is a public health burden. It is estimated that more than 1.4 billion people are at risk of rabies infection in the South-East Asia region. Each year, 23,000-25,000 people die due to the extremely fatal disease in this region, which accounts for 45% of the rabies death worldwide [1]. Around 36% of the world's rabies death occur in India each year [2]. But this can be an underestimation as true rabies is not a notifiable disease in India [3]. Rabies fatalities in India are the highest in Asia and the second highest in the world [4]. It is endemic throughout the country with the exception of Andaman & Nicobar and Lakshadweep Islands [5]. India spends approximately INR 15 billion on rabies vaccines alone, exerting a sizeable economic burden on the government [6]. Even though deaths caused by rabies are preventable by the timely application of appropriate prophylaxis, mortality remains considerably high. This situation is rooted in the lack of awareness regarding preventive measures of rabies, proper post-exposure prophylaxis, and also poor access to proper health services[7].Post-exposure prophylaxis (PEP) with ARV for rabies is believed to be one of the cost-effective methods of preventing death due to dog bite. Lack of PEP and poor compliance to ARV are the important reasons for rabies death [8-10]. With the above-cited picture, a study was conducted to determine the demographic characteristics of patients attending ARV clinic, and their compliance to ARV and RIG.

METHODOLOGY-

This cross-sectional study was conducted in an ARV OPD of Shri Chhatrapati Shivaji Maharaj Sarvopchar rugnalaya Solapur which is part of Dr.VMGMC Solapur, for the period of October and November 2022. Patients visited OPD for first time for recent animal bite ailment in month of October were included in study, so total of 443 patients were included under this study. Those who do not have telephone numbers with them were excluded from study. Purposive sampling method was used to recruit the study participants. All the patients coming to the ARV clinic during this period were included in this study during their first visit and were prospectively followed up for the next 28 days for assessment of completion of the four doses of ARV and rabies immunoglobulin. All the ARV beneficiaries were interviewed for wound-washing practices during any of the visits; however, most of the beneficiaries were assessed in the first visit. All other data like demographic variables, the Category of bite, nature of bite (pet/stray), type of animal exposed, the status of ARV, and injection vaccination were assessed from the ARV register. As per the Policy of this Hospital patients are administered with inj. RIG in wards, so data regarding RIG compliance was collected from paediatric and Medicine wards.

The patients who visited the OPD were first assessed to determine the category as well as the severity of the bite. Animal bites are categorized into categories I, II, and III as per the type of contact. Category I is no exposure, or the animal licks while touching or feeding on intact skin; category II is nibbling of uncovered skin, or minor scratches or abrasion without bleeding; and category III is single or multiple transdermal bites or scratches, contamination of mucous membrane or broken skin with saliva from animal licks, or exposure due to direct contact with bats. ARV is administered for category II and III, and rabies immunoglobulin is administered for category III bite [12]. An intradermal/intramuscular schedule is followed.

Data was collected using a pre-designed semi-structured questionnaire. The respondents were not acquainted with the terms “anti-rabies vaccine” (ARV) and “anti-rabies serum;” (ARS); hence, they were asked about the site and the number of injections given. If the injection was administered at the site of the wound, we recorded it as ARS, while the data for ARV was collected from the records.

A patient was defined as compliant for ARV when the participant had taken four doses of ARV and the participant was defined as compliant for RIG when the participant had taken RIG before the third dose (day 7th) of ARV. RIG compliance was verified from the prescription of the participants. For the re-exposure cases, the appropriate dosing schedule was considered instead of the full four doses.

The study was initiated following the clearance from the Institute Ethics Committee, Dr. VMGMC. Solapur. Data was collected and compiled in Microsoft Excel 2015 (Microsoft Corporation, Redmond, WA, USA) and then analysed using Statistical Package for Social Sciences version 22 (IBM Corp, Armonk, NY, USA). All the categorical variables were expressed as percentage or proportion and the level of significance between two or more categorical variables was assessed by the Chi-square test. A p-value of less than 0.05 was considered as significant. Continuous variables are presented as mean and standard deviation.

RESULTS –

A total of 443 patients attended to ARV OPD in Study period were analysed which includes 315 males and 128 females. Out of which most of the study subjects I.e. 60.06% were from age group of 16-59 years. Majority I.e. 70.65% subjects were from urban area.(Table 1) Majority of study subjects were educated and from class IV of socioeconomic status.(Table 1)

Table 1. Sociodemographic Characteristics of animal bite cases.

Characteristic	No. (n=443) (%)
Age in Years	
< 5	52 (11.73)

6 – 15	80 (18.06)
16– 59	266 (60.06)
>60	45 (10.15)
Gender	
Male	315 (75.10)
Female	128(24.90)
Place of residence	
Urban	313 (70.65)
Rural	130 (29.35)
Education	
Literate	381(86.1%)
Illiterate	62(13.9)
Socioeconomic status	
Class I	27 (6.09)
Class II	70 (15.8)
Class III	128 (28.89)
Class IV	190 (42.88)
Class V	28 (6.32)

Table 2 - Distribution of patients depending on type of animal exposed

Animal	Total (%)
Dog	390 (88.03)
Cat	19 (4.28)
Rat	14 ()
Monkey	04 (0.9)
Other*	16 ()
Total	443

Majority I.e. 88.03% study subjects was exposed to dog.(Table 2) out of which 196 I.e. 91.58% were observable.(Table 3)

Table 3-Distribution of patients by type of animal bite.

Animal	Observable n= 214(%)	Non-observable n=229(%)
Dog	196 (91.58)	194 (84.71)
Cat	13 (6.07)	06 (2.62)
Other*	05 (2.33)	29 (12.66)
Total	214	229

Table 4. Classification of Patients Depending on their category of Exposure.

Category	No. (%)
Category I	19 (4.28)
Category II	56 (12.64)
Category III	368 (83.06)
Total	443

Table 4 showed that majority of study subject had category III bite I.e. 83.06% followed by category II and Category I bite in 12.64% and 04.28% study subjects respectively.

Table 5 and 6 shows the compliance of study subjects towards ARV. 55.89% study subjects was found compliant towards the ARV dose. Out of various factors studied, place of residence, gender , education and time of animal exposed were found significant toward the compliance.

Table 5 - Compliance of patients for inj. ARV & inj. ARS.

Compliance	Frequency	Percentage
ARV Compliance (Ivth dose) (n=424)	237	55.89
RIG Compliance (n=368)	203	55.16

Table 6 - Association of ARV compliance with socio-demographic characteristics.

Variable	Compliant n=237(%)	Non-compliant n=187(%)	Total (n=424)	X2 value P<0.05
Age in Yrs				
< 5	24	22	46	X2-7.2842 P value-0.06 Not significant
6 – 15	33	43	76	
16 - 59	154	108	262	
>60	26	14	40	
Gender				
Male	144	160	304	31.6865 Significant.
Female	93	27	120	
Place of residence				
Urban	142	159	301	X2-32.0049 P value <0.00001 significant
Rural	95	28	123	
Type of animal exposed				
Dog	228	162	390	X2-12.983 P value 0.003 significant
Others	09	25	34	
Type of animal bite.				
Non-observable	116	99	215	X2 -0.6678 P value- 0.413 Not significant
Observable	121	88	209	
Education				
Literate	201	169	370	X2 -2.9118 P value -0.08 Not significant
Illiterate	36	18	54	
Socioeconomic Status				
High SES	109	105	214	X2 -0.1569 P value -0.691 Not significant
Low SES	111	99	210	
Category of animal bite				
Category II	21	35	56	X2 -8.85 P value -0.002 significant
Category III	216	152	368	

DISCUSSION-

Present study showed, most of the study subjects I.e. 60.06% were from age group of 16-59 years. Majority I.e. 70.65% subjects were from urban area. Majority of study subjects were educated and from class IV of socioeconomic status. Majority I.e. 88.03% study subjects was exposed to dog. out of which 196 I.e. 91.58% were observable. Majority of study subject had category III bite I.e. 83.06% followed by category II and Category I bite in 12.64% and 04.28% study subjects respectively. 55.89% study subjects was found compliant towards the ARV dose. Out of various factors studied, place of residence, gender , education and time of animal exposed were found significant toward the compliance.

Similar finding was found in study conducted by Shelke et al.,[15] Jain et al.[16],they also showed more male involvements which may be due to more outdoor activities in male thereby have greater chances of being bitten. Shelke et al.[15] also reported in their studies that 71.9% were of class III category. 98.04% bites were by dogs which is similar to our study. Patel s. et al.[17] in their study reported that most of the study subjects was less that 15 years of age which was contrast to our study. This may be due to different reporting rate of patients to different area.

CONCLUSION -

The study findings conclude that animal bites, especially dog bites is one of the important public health problem. Category III wound which may be responsible for rabies was common amongst animal bite patients. Our study showed that sizeble population was not compliant with ARv doses. Education, place of residence and gender were the factors which affected the compliance.

Recommendations-

It is necessary to improve Knowledge level in community about the immediate cleaning of wound. The civic authorities need to resort to control stray dog population. Also owners of pet animals need to encourage about vaccination of their pet.

Limitation -

Our study is limited by its area of work, i.e., hospital-based, multi-centric study is needed to be done to understand the magnitude of problem. Study involves all the limitations of cross sectional study.

REFERENCES

1. Rabies in the South-East Asia region. [Mar;2021];https://www.who.int/ indonesia/ health topics/rabies 2021
2. India's ongoing war against rabies. [Sep;2019];https://www.who.int/ bulletin/ volumes/87/12/09-021209/en/ 2009
3. National Rabies Control Programme. [Mar;2021];https://www.nhp.gov.in/national-rabies-control-programme_pg#:~:text=In%20India%2C%20dogs% 20are% 20responsible,about% 2097%25%20of%20human% 20rabies%2C &text=Under% 20the%2012%20five%2Dyear,in%20all%20the%20states%20%26%20UTs. 2018

4. Assessing burden of rabies in India. [Nov;2019];http://rabies.org.in/rabies/wp-content/uploads/2011/whosurvey.pdf 2011
5. World Rabies Day 2018. [Sep;2019];https://www.nhp.gov.in/world-rabies-day-2018_pg 2018
6. Meslin FX. Geneva: World Health Organization; 2009. Appraisal on Implementation of Intradermal Rabies Vaccination in India - The Kerala Experience.
7. Facilities and services of postexposure prophylaxis in anti-rabies clinics: a national assessment in india. Sudarshan MK, Haradanhalli RS. *Indian J Public Health.* 2019;63:0. [PubMed] [Google Scholar]
8. Deaths from symptomatically identifiable furious rabies in India: a nationally representative mortality survey. Suraweera W, Morris SK, Kumar R, Warrell DA, Warrell MJ, Jha P. *PLoS Negl Trop Dis.* 2012;6:0. [PMC free article] [PubMed] [Google Scholar]
9. Epidemiology of human rabies cases in Kolkata with its application to post prophylaxis. Kumar A, Pal D. *Indian J Anim Res.* 2010;44:241–247. [Google Scholar]
10. A retrospective epidemiological study of delay for updated Thai red cross intradermal anti-rabies vaccination schedule amongst animal bite cases attending ARV clinic at a tertiary care centre. Patil AR, Bawa MS, Shirpurkar MB, Tambe MP. *Int J Community Med Public Health.* 2015;2:19–24. [Google Scholar]
11. Assessing burden of rabies in India: WHO sponsored National Multicentric Rabies Survey, 2003. Sudarshan MK. *Ind J Community Med.* 2005;30:100–101. [Google Scholar]
12. National Guidelines on Rabies Prophylaxis. [Mar;2021];*New Delhi.* 2015
13. Case profile, volume analysis, and dropout rate of antirabies vaccination regimens among animal bite victims in Gujarat. Dhaduk KM, Unadkat SV, Katharotiya PR, Mer AR, Chaudhary MC, Prajapati MM. *Indian J Public Health.* 2016;60:268–272. [PubMed] [Google Scholar]
14. Assessing the burden of human rabies in India: results of a national multi-center epidemiological survey. Sudarshan MK, Madhusudana SN, Mahendra BJ, et al. *Int J Infect Dis.* 2007;11:29–35. [PubMed] [Google Scholar]
15. Shelke SC, Kamble MS, Niwal A. Epidemiological determinants of animal bite cases attending the anti-rabies immunization (ARV)OPD in Sassoon hospital, Pune. Int J Basic Appl Sci. 2015;5(2):98-101.
16. 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 Dent Sci. 2015;3(1):79.
17. 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.