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TREND OF ANIMAL BITE CASES REPORTED TO ANTI RABIES VACCINATION CLINIC AT A TERTIARY CARE HOSPITAL.

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ABSTRACT

Introduction: Rabies is a fatal viral zoonosis and serious public health problem. Though 100% fatal ,it is a 100% preventable disease .Rabies is a global burden and a fatal disease of the central nervous system .WHO reports around 55,000 rabies deaths out of which 20000 deaths are estimated to occur in India alone with 17.4 million exposures to animal bite every year. Rabies is transmitted to humans through animal bites, mostly dogs.

Objectives:

1. To study the trend of animal bite cases over a period of last 10 years.
2. To study the distribution of cases according to gender, season and type of animal bite.

Materials and Methods: This record based cross sectional study was carried out at the anti-rabies vaccination (ARV) clinic. All the new cases of animal bites reported to ARV clinic during the last 10 years, from January 2011 to December2020 were assessed. Data is presented using percentages and proportions. **Results:** In our study the number of animal bite cases were continuously increasing since 2011 till 2019 with an exception in 2013 and 2020 in which there were slight decrease in cases. Month wise distribution of animal bite victims attending the ARV clinic having highest number of animal bite cases in December i.e. 2951 followed by November (2878) followed by January (2874). Out of total 31,677 animal bite cases 28,303(89%) were urban & 3374(11%) were rural. The ratio of urban to rural is 8.3:1. Among the cases, 69% were males and 31% were females. Majority of the cases were of dog bite (88.75%) followed by cat bite (7.3%) and monkey bite (2.2%) and 1.75% of the cases were bitten by other animals. **Conclusion:** Thus, an increasing trend of animal bite cases is seen and this shall increase in the future also. So appropriate preventive & control measures with intersectoral coordination should be enhanced in endemic areas in a developing country like India.

KEYWORDS : Rabies, Animal Bite, Dogs, Anti Rabies Vaccine.

I. INTRODUCTION

Rabies is a vaccine-preventable, zoonotic, viral disease. Once clinical symptoms appear, rabies is virtually 100% fatal. Yet, rabies can affect both domestic and wild animals. It is spread to people and animals through bites or scratches, licks on broken skin and mucous membrane, usually via saliva. In up to 99% of cases, domestic dogs are responsible for rabies virus transmission to humans. Rabies is present on all continents, except Antarctica, with over 95% of human deaths occurring in the Asia and Africa regions.[1]

Dog bites are the primary source of human infection in all rabies endemic countries and account for 96 % of rabies cases in South East Asia region. More than 99% of all human rabies deaths occur in the developing world [4According to WHO report, human deaths from endemic canine rabies were estimated 55000 deaths in a year, worldwide 6 from which 56% contribution from South East Asia Region.[2]In India, dogs are responsible for about 97% of human rabies, followed by cats (2%), jackals, mongoose and others (1%). In India, every year 20,000 deaths are estimated and 17.4 million animal bite cases were reported.[2] Also reliable data regarding rabies is not available due to lack of organized surveillance system.[3]

According to WHO, Each year, 23 000 – 25 000 people die in the SEA Region due to rabies. These accounts for approximately 45% human deaths due to rabies worldwide. [4] Of the estimated 25,000 deaths due to rabies in SEAR, a majority are in India (around 20,000) and Bangladesh (2000). More than 2.5 million people undergo post-exposure prophylaxis after being bitten by rabid or suspected rabid animals causing considerable morbidity and economic loss. [5]

Rabies is a widespread, neglected and under reported zoonosis, with an almost 100% case fatality rate in human and animal untreated on time, and causes a significant social and economic burden in many countries worldwide.[6] Due to presence of multiple religious & socio-cultural practices & beliefs associated with rabies, economic and political factors and lack of accurate data; the disease has not been brought under control, even though available control measures are both economic and effective.[2] With this background kept in mind the present cross-sectional study was carried out to assess the trend of animal bite cases in the last 10 years.

Objectives:

1. To study the trend of animal bite cases over a period of last 10 years.
2. To study the distribution of cases according to gender, season and type of animal that had bitten.

II. MATERIALS AND METHODS

This record based cross sectional study was carried out at ARV OPD of the Vilasrao Deshmukh Government Medical College, Latur, Maharashtra, India over a period of three months. Before the start of the study permission from institutional ethical committee was taken. All the data is taken from records available & well maintained in the ARV OPD and Medical record section. All the new cases of animal bites reported to ARV OPD during the last 10 years period from January 2011 till December 2020 were assessed. Data were entered into an MS Excel sheet and tabulated & then analysed. Data were presented using percentages and proportions.

III. RESULTS

Table no. 1 showing month wise distribution of animal bite victims attending anti-rabies vaccination clinic having highest no. of animal bite cases in December i.e., 2951 followed by March (2878) followed by January (2874). Minimum no. of animal bite cases is in the month of August (2121) followed by July (2320) i.e., during rainy season. This

shows that the majority of cases are in pre-monsoon months.

Table 1. Month wise distribution of animal bite victims attending anti-rabies vaccination clinic.

MONTH	NO. OF CASES
JANUARY	2874
FEBRAURY	2679
MARCH	2735
APRIL	2777
MAY	2686
JUNE	2632
JULY	2320
AUGUST	2121
SEPTEMBER	2395
OCTOBER	2629
NOVEMBER	2878
DECEMBER	2951
TOTAL	31,677

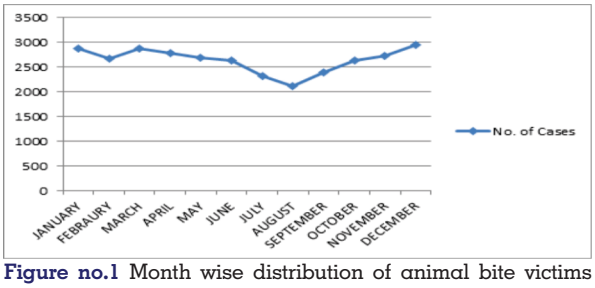

Figure no.1 Month wise distribution of animal bite victims attending Anti-Rabies vaccination clinic.

Table no. 2 depicts year wise distribution of animal bite victims attending anti-rabies vaccination clinic showing out of total 31,677 animal bite cases 28,303 (89%) were urban & 3374(11%) were rural.

The ratio of urban to rural is 8.3: 1. The number of animal bite cases in urban area are approximately 8 times the no. of cases of bite in rural area. The no. of animal bite cases are continuously increasing since 2011 till 2019 with an exception in 2013 and in 2020 (Probably due to covid -19 lock down) in which there is slight decrease in no. of animal bite cases. The highest number of animal bite cases are recorded in the 2018(3744).

Table 2. Yearwise Distribution Of Animal Bite Victims Attending Antirabies Vaccination Clinic.

YEAR	Male	Female	URBAN	RURAL	TOTAL
2011	1580 (62%)	980 (38%)	2233 (87%)	327 (13%)	2560
2012	1718 (65%)	924 (35%)	2226 (84%)	416 (16%)	2642
2013	1744 (68%)	806 (32%)	2103 (82%)	447 (18%)	2550
2014	2083 (67%)	1043 (33%)	2874 (92%)	252 (8%)	3126
2015	2429 (71%)	970 (29%)	3134 (92%)	265 (8%)	3399
2016	2412 (69%)	1086 (31%)	3191 (91%)	307 (9%)	3498
2017	2530 (72%)	1005 (28%)	3279 (93%)	256 (7%)	3535
2018	2664 (71%)	1080 (29%)	3352 (90%)	392 (10%)	3744
2019	2657 (71%)	1066 (29%)	3316 (89%)	407 (11%)	3723
2020	1882 (65%)	1018 (35%)	2595 (89%)	305 (11%)	2900
TOTAL	21699 (69%)	9978 (31%)	28,303 (89%)	3374 (11%)	31,677

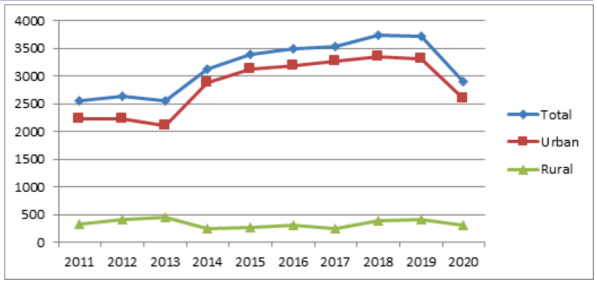

Figure No .2 Yearwise Distribution Of Animal Bite Victims Attending Antirabies Vaccination Clinic.

Among the cases, 69% animal bite victims were males and 31% were females. (Figure 3) Majority of the cases were of dog bite (88.75%) followed by cat (7.3%) and monkey bite (2.2%). Only1.75% of the cases were bitten by other animals. (Figure-4)

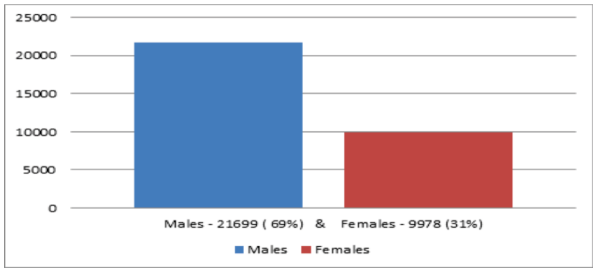

Figure No.3 Gender Wise Distribution Of Animal Bite Victims Attending Antirabies Vaccination Clinic.

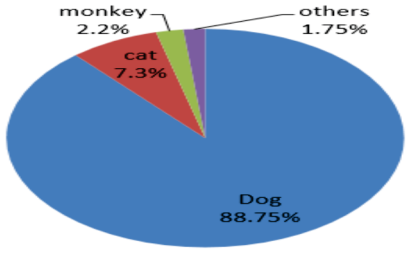

Figure No.4 Distribution Of Type Of Animals Bite Victims Attending Antirabies Vaccination Clinic.

III. DISCUSSION

Where rabies is a public health issue, prevention of the disease in humans depends on a combination of interventions including control of rabies in both wild & domestic animals particularly dogs, preexposure immunization of humans at risk of contracting the disease & on delivery of post exposure prophylaxis to potentially exposed patients. Most of studies are available on epidemiological profile & mortality of human rabies & very few are on the trend of animal bite victims in current years.

Table no. Table no. 1 showing month wise distribution of animal bite victims attending anti-rabies vaccination clinic having highest no. of animal bite cases in December i.e., 2951 followed by November (2878) followed by January (2874). Minimum no. of animal bite cases is in the month of August (2121) followed by July (2320) i.e., during rainy season. This shows that the majority of cases are in winter months.

Current cross sectional study is conducted to find out the trend of animal bite victims over a period of last 10 years and to assess the seasonal distribution of animal bite victims. In our study, it was observed that average animal bite cases were more in the month of October,

November, December and January and less in the months of July and August. It is similar to a study by Sinha et al (2015) [7]

where more cases were found in the months of October, November and December and fewer cases found in the months of August, July and September respectively. In contrast to this study, a study conducted by Dr Kulkarni et al [8] found maximum number of cases in the month of March, April and February. Maximum number of animal bite cases were by dogs followed by cats and monkeys which is similar to the findings of TR Behera et al [9], Singh et al [10], and Sudarshan et al [11] where dogs were the most common (95.8%) biting animal.

Table no. 2 depicts year wise distribution of animal bite victims attending anti-rabies vaccination clinic showing out of total 31,677 animal bite cases 28,303 (89%) were urban & 3374(11%) were rural. The ratio of urban to rural is 8.3: 1. The number of animal bite cases in urban area are approximately 8 times the no. of cases of bite in rural area. The no. of animal bite cases are continuously increasing since 2011 till 2019 with a exception in 2013 and in 2020 (Probably due to covid -19 lock down) in which there is slight decrease in no. of animal bite cases. The highest number of animal bite cases are recorded in the 2018(3744).

Males were more affected than females which could be because males are more involved in outdoor activities than females. Similar findings were reported by Mahd Junaid et al [12], Shelke et al [13], Jain et al [14]. However, in a study by Gupta et al [15] more females were the victims. Likewise, majority of animal bite cases were from urban areas and this could be due to less reporting from rural areas due to lack of awareness. And similar findings were found by Kirti V Kinge [16] (2016) in her study at Nagpur concluded that around 89.4% animal bite victims were from urban area while remaining 10.6% from rural area. Choudhary K. (2014) [17] concluded that 71.5% cases are from urban area & 28.4% were from rural area.

IV. CONCLUSION

Thus, an increasing trend of animal bite cases is seen and this shall increase in the future also .so appropriate preventive & control measures with intersectoral coordination should be enhanced in endemic areas in a developing country like India. Because rabies is not a notifiable disease in India and there is no organised surveillance system, the actual number of deaths might be higher.

Epidemiological studies like the present study may help assess the true magnitude of the problem. Stringent measures including patient education, copious irrigation of bite wounds, early initiation of post-exposure prophylaxis in the form of modern tissue culture vaccine, and administration of HRIG, antimicrobial therapy for high-risk wounds and control of population of stray dogs need to be undertaken to reduce the social and economic burden of disease.

V. Recommendations

Proper information and education regarding rabies through mass media requires for false beliefs about the disease and deeply seated misconceptions about treatment of disease. This should be carried out at regular interval at health facility and at public places through IEC material. Vaccination and municipal licensing of pet dogs must be enforced. The people should be educated regarding the importance of wound washing and getting 1st dose of anti- rabies vaccine on the same day of animal bite as it is very important and the only measure to prevent occurrence of rabies. Local and state government administration must be geared up, to reduce the load of stray dogs by catching them followed by sterilization.

VI. Limitations

Since the subjects included in the study were patients attending tertiary care centre hospital study findings cannot be generalized to the whole population at large. To get more insight for assessing burden and epidemiology of the animal bite, community based studies are needed.

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