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Trend of Animal Bite Victims Reported to Anti Rabies Vaccination Clinic At A Tertiary Care Hospital Nanded Maharashtra

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Abstract:
Background: *Though rabies is a global burden, India alone contributes an estimated 20000 deaths with 17.4 million exposures to animal bite occurring every year. It is estimated that in the absence of the post exposure prophylaxis about 3,27,000 people would die annually. Rabies, an invariably fatal viral disease, is transmitted to humans through animal bites, mostly dogs. Of the estimated 25,000 deaths due to rabies in SEAR, a majority are in India and Bangladesh. Rabies is a fatal disease of the central nervous system caused by the bites of warm-blooded animals. Rabies is a fatal viral zoonosis and serious public health problem. It is 100% fatal yet 100% preventable disease.*
Objectives: *To study the trend of animal bite cases over a period of last 5 yrs & to study the seasonal distribution of animal bite victims over a period of last 5 yrs. Materials and Methods: This cross sectional study was carried out at ARV OPD of DR.S.C.G.M.C. Nanded a tertiary-care hospital, Maharashtra, India. All the new cases of animal bites reported to ARV OPD during the last 5 yrs period from march 2011 till march 2016 were recorded to assess. Data were presented using percentages and proportions.*
Results: *The no. of animal bite cases are continuously increasing since 2011-12 (3604),2012-2013(4115),2013-2014(4710) till 2014-2015(4979) with a exception in 2015-2016(4234) in which there is slight decrease in no. of animal bite cases. Monthwise distribution of animal bite victims attending antirabies vaccination clinic having highest no. of animal bite cases in the March i.e. 2189 followed by April (2134) followed by February (2100). Out of total 21644 animal bite cases 13633(62.98%) were urban & 8011(37.01%) were rural. The ratio of urban to rural is 1.7:1.*
Conclusion: *The burden of animal bite cases are rising & will increase in future so appropriate preventive & control measures with intersectoral coordination should be started vigoursly in endemic areas as this is the only cure for rabies in developing countries like India.*
Keywords: *Rabies, Immunization, Animal Bite, Stray Dogs, Anti Rabies Vaccine*

I. Introduction

Rabies, an invariably fatal viral disease, is transmitted to humans through animal bites, most commonly dogs. 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.

The claw wound or animal bite is significant cause of large number of human morbidities and mortalities which
includes rabies.[1] About 96% of animal bite cases in urban areas are dog bite. Rabies virus are transmitted through saliva from animal to human beings or animal to other animal by means of bites, scratches, licks on broken skin and mucous membrane.[2] Nearly 99 % of all human rabies victims attributed to canine rabies which is continues to terrify 87 countries or territories of the world.[3]More than 99% of all human rabies deaths occur in the developing world [4] and reliable data regarding rabies is not available due to lack of organized surveillance system.[5]According 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.[7]In India, dogs are responsible for about 97% of human rabies, followed by cats (2%), jackals, mongoose and others (1%). The disease is mainly transmitted by the bite of a rabid dog.8In India, every year 20,000 deaths and 17.4 million animal bite cases were reported.[7] Rabies is reported throughout the year from all states of India except Lakshadweep and the Andaman & Nicobar Islands.[9] 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, 2,5 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. [10] Of the estimated 25,000 deaths due to rabies in SEAR, a majority are in India (around 19,000) 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. [11]

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 [12]. The disease is caused by a neurotropic virus belonging to the genus Lyssa virus in the family rhabdoviridae. The rabies virion consists of a single-stranded negative sense RNA, contained within a bullet shaped bi-layered envelop. The virus is transmitted by its introduction into wounds or cuts in skin or mucous membranes, most commonly by bites of rabid animals [13].

With this background kept in mind the present crosssectional study was carried out to assess the trend of animal bite cases in the last 5 yrs. Objectives : To study the trend of animal bite cases over a period of last 5 yrs & to study the seasonal distribution of animal bite victims over a period of last 5 yrs.

II. Materials And Methods

This cross-sectional study was carried out at Anti- Rabies Vaccination (ARV) outpatient department (OPD) of DR.S.C.G.M.C. Nanded a tertiary-care hospital, 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. All the new cases of animal bites reported to ARV OPD during the last 5 yrs period from march 2011 till march 2016 were recorded. Data were entered into an MS Excel sheet and tabulated & then analyzed. Data were presented using percentages and proportions.

III. Results

Table no. 1 showing monthwise distribution of animal bite victims attending antirabies vaccination clinic having highest no. of animal bite cases in the March i.e. 2189 followed by April (2134) followed by February (2100). Minimum no. of animal bite cases are in the month of August (1397) followed by september (1532)i.e during rainy season. This shows that the majority of cases are in premonsoon months.

Table no. 2 depicts yearwise distribution of animal bite victims attending antirabies vaccination clinic showing out of total 21644 animal bite cases 13633(62.98%) were urban & 8011(37.01%) were rural. The ratio of urban to rural is 1.7:1. The number of animal bite cases in urban area are approximately double the no. of cases of bite in rural area except in yr 2011-12 in which these are almost equal. The no. of animal bite cases are continuously increasing since 2011-12 (3604),2012-2013(4115),2013-2014(4710) till 2014-2015(4979) with a exception in 2015-2016(4234) in which there is slight decrease in no. of animal bite cases. The highest no.of animal bite cases are recorded in the 2014-2015(4979).

Table . 1 Monthwise distribution of animal bite victims attending antirabies vaccination clinic.

MONTH	NO.
MARCH	2189
FEBRUARY	2100
JANUARY	2061
DECEMBER	2103
NOVEMBER	1739
OCTOBER	1600
SEPTEMBER	1532
AUGUST	1397
JULY	1745
JUNE	1964
MAY	2070
APRIL	2134

Figure no. 1 Monthwise distribution of animal bite victims attending antirabies vaccination clinic

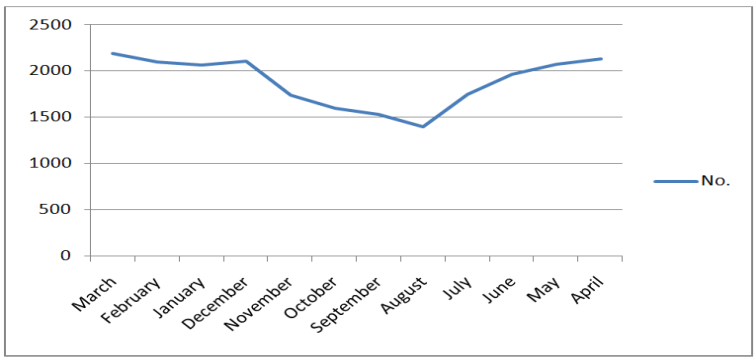

Table . 2 Yearwise distribution of animal bite victims attending antirabies vaccination clinic.

YEAR	URBAN	RURAL	TOTAL
2015-2016	3054	1180	4234
2014-2015	3039	1940	4979
2013-2014	3112	1598	4710
2012-2013	2563	1554	4115
2011-2012	1865	1739	3604
TOTAL	13633(62.98%)	8011(37.01%)	21644(100%)

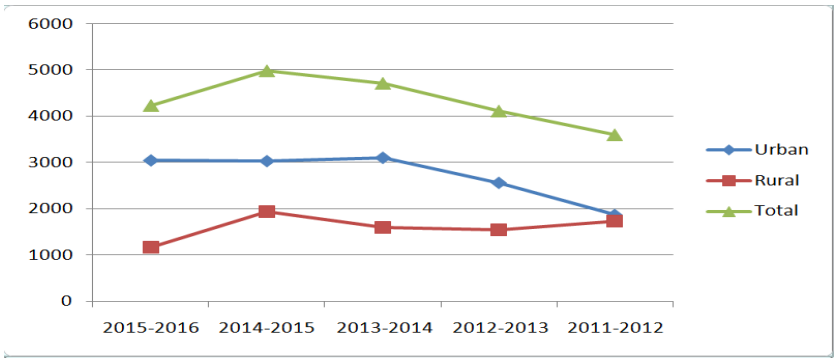

Figure no. 2 Yearwise distribution of animal bite victims attending antirabies vaccination clinic.

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 boyh 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. 1 showing monthwise distribution of animal bite victims attending antirabies vaccination clinic having highest no. of animal bite cases in the March i.e. 2189 followed by April (2134) followed by February (2100). Minimum no. of animal bite cases are in the month of August (1397) followed by september (1532) i.e during rainy season. This shows that the majority of cases are in premonsoon months.

Seasonal variation in incidence of dog bites was observed during the study, more cases occurring during the pre-monsoon months followed by another shorter peak during post-monsoon. It was also noted that the dog-bites occurred throughout the year especially in those localities with high population density cohabiting with an equally high number of stray dogs. [5] The finding of the present study are similar with other studies. The study made by TR Behera in Berhampur, Orissa also shows a rise in the number of cases in the summer and winter months. However, in the study made by M Zeynali in Iran, Angelo Monroy in New York and in the brief report on dog- bite cases attending USED, a rise in the number of cases were noticed during the summer months [16,17]. Again in a study in Jamnagar, Gujarat, maximum number of cases was seen to occur during winter. The epidemiological study done in Dhaka by Md. Shahidul Haque showed no significant seasonality [15]. Arijit sinha et al (2015) [14] carried study in eastern india showed an increasing number of cases in the months of October, November and May i.e. in the early-winter and summer.

Table no. 2 depicts yearwise distribution of animal bite victims attending antirabies vaccination clinic showing out of total 21644 animal bite cases 13633(62.98%) were urban & 8011(37.01%) were rural. The ratio of urban to rural is 1.7:1. The number of animal bite cases in urban area are approximately double the no. of cases of bite in rural area except in yr 2011-12 in which these are almost equal. The no. of animal bite cases are continuously increasing since 2011-12 (3604),2012-2013(4115),2013-2014(4710) till 2014-2015(4979) with a exception in 2015-2016(4234) in which there is slight decrease in no. of animal bite cases. The highest no.of animal bite cases are recorded in the 2014-2015(4979). We have found more cases from urban areas and this could be due to less reporting from rural areas due to lack of awareness. Kirti V Kinge [18] (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)[19] concluded that 71.5% cases are from urban area & 28.4% were from rural area.

IV. Conclusion

The burden of animal bite cases are rising & will increase in future so appropriate preventive & control measures with intersectoral coordination should be started vigoursly in endemic areas as this is the only cure for rabies in developing countries like India.

Rabies is a condition that needs to be aggressively addressed. It is not treatable but 100% vaccine-preventable disease. 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. 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. Local and state government administration must be geared up, to reduce the load of stray dogs by catching them followed by sterilization.

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.

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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