ORIGINAL RESEARCH PAPER

Volume - 10 | Issue - 04 | April - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CROSS- SECTIONAL STUDY OF ANIMAL BITE VICTIMS AND RABIES POST EXPOSURE PROPHYLAXIS UNDER NRCP (NATIONAL RABIES CONTROL PROGRAMME) AT A RURAL HOSPITAL OF NORTH 24 PARGANAS OF WEST BENGAL, INDIA.

Community Medicine

Chinmay Nandi District Nodal Officer, National Urban Health Mission, North 24 Parganas, West Bengal.

Saikat Bhattacharya Assistant Professor, Department of Community Medicine, Medical College, Kolkata, West Bengal.

Soumitra Mondal Demonstrator , Department of Community Medicine, Medical College, Kolkata, West Bengal, India.

Shibasish Banerjee* Assistant Professor, Department of Community Medicine, Medical College, Kolkata, West Bengal, India. *Corresponding Author

ABSTRACT

Objectives - Rabies, an Endemic disease, is responsible for extensive morbidity and mortality in India. About 96% of the mortality and morbidity is associated with dog bites. The aim of the study was to estimate the prevalence and pattern of animal bites and rabies post exposure prophylaxis under National Rabies Control Programme

Methodology – It was a Record cross sectional study where complete enumeration of all animal bite victims were done. Total 2940 such cases were found in that year. Data of 42 cases was excluded due to incomplete records. Data was analysed using MS Excel. Animal Bite Exposure register under National Rabies Control Programme, Patient Treatment cards, Consolidated reports were evaluated as study tools.

Results - Majority of the wounds were found in limbs in 2695 (93%) cases. It is followed by wound in other areas like face 104(3.6%) and back 95 (3.3%). In a few cases site of wound was not mentioned in the case record. Children were most commonly affected (28.2%).Cat -bite is most common (49.3%). Around 84.9% were Category II bite and rest are category III.

Conclusion - Dogs and cats are mostly responsible of animal bites in this part of the country. There is need to control stray dogs .Children are found to be most vulnerable for animal bites. There is gap between eligible candidates for vaccine and those who actually received it both in Category II and III animal bite victims.

KEYWORDS

Animal-Bite, Rabies, National Rabies Control Programme

INTRODUCTION

Zoonosis is an infection or infectious disease of animals that are transmissible under natural conditions from vertebrate animals to man. There are many zoonotic diseases which are deadly to human like rabies, plague etc. Because rabies is a vaccine-preventable disease, the estimated occurrence of 55,000 annual human deaths caused by this disease worldwide is unacceptable and inexcusable [1]. Despite the successful prevention of human rabies and control of canine rabies in North America, Western Europe, and a number of Asian and Latin American countries, this disease is considered to be a neglected tropical disease [2]. Rabies is responsible for extensive morbidity and mortality in India. The disease is endemic throughout the country. With the exception of Andaman & Nicobar and Lakshadweep Islands, human cases of rabies are reported from all over the country. The cases occur throughout the year. About 96% of the mortality and morbidity is associated with dog bites. Cats, wolf, jackal, mongoose and monkeys are other important reservoirs of rabies in India. Bat rabies has not been conclusively reported from the country [3].

Animal bites are neither notifiable in this country nor reported in the routine surveillance system. So animal bite is often under reported. .In Kenya, 146,362 (incidence 336 bites/100,000 persons) animal-bite injuries cases and 858 confirmed human rabies cases from owned free-roaming dogs have been documented between 2002 and 2012 [4,5].According to WHO survey conducted in 2002, the annual incidence of animal bite is 1.7% and the bites were more common in children (2.5%) and males (68%) [6]. Venkatesan et al. (2014) study in India indicated the prevalence of 81.8% per 1000 population for animal bite [7].

Principle of treatment under NRCP is Wound Treatment, Anti-tetanus measure & Anti - Rabies Immunization .Immunization can be Active Immunization: Administration of anti-rabies vaccine & Passive Immunization: Administration of rabies immunoglobulin / monoclonal antibodies.(in Category III exposures).Post exposure prophylaxis forms the corner stone of rabies management in category II and category III exposure .Administration of anti-rabies serum in Category III is equally important as vaccines.[3] Intra dermal schedule under NRCP is implemented in this part of the country.

Animal-bite injuries have been used as a proxy to assess the risk of transmission of rabies virus from animals to humans and determine need for PEP [8].Surveillance data of animal-bite injuries can also be used as a proxy to estimate an area or region specific rabies burden, thus prioritizing improved rabies surveillance and control[8].Further, this data can help in understanding patient as well as biting animal characteristics and spatial-temporal distribution of animal-bite injuries [8].

These are useful indictors in monitoring the success in implementation of the rabies elimination strategy. The aim of the study was to estimate the prevalence and pattern of animal bites and rabies post exposure prophylaxis under National Rabies Control Programme.

METHODS

This study was conducted at Madhyamgram Rural Hospital (Rural Field Practice area of Department of Community Medicine, Medical College Kolkata) in the district of North 24 Parganas, West Bengal India.

Data was collected from all animal bite victims attending Out Patients Department (OPD) in the year 2020(1st January 2020 to 31st December) at the rural hospital. It was a cross sectional study where complete enumeration of all animal bite victims were done. Total 2940 such cases were found in that year. Data of 42 cases was excluded due to incomplete records. Data was checked and compiled and analysed using MS Excel. The socio demographic characteristics like gender, age, epidemiological indicators related to rabies like type of animal bite, category of bite as per WHO classification, routes of vaccination, site of bite were taken as study variables.

Retrospective record review was taken as study technique. Animal Bite Exposure register under National Rabies Control Programme, Patient Treatment cards, consolidated reports submitted by the unit to district were evaluated as study tools.

Census data 2011 was taken for computing Animal bite rates. Historical recall was used to collect various response from the patients by the health care providers.

RESULTS-

Majority of the wounds were found in limbs in 2695 (93%) cases. It is followed by wound in other areas like face 104(3.6%) and back 95 (3.3%).In a few cases site of wound was not mentioned in the case record.

Table 1: Distribution Of Type Of Biting Animals Among Animal Bite Victims

Type of animals	No of cases	Percentage (%)
Dog	1354	46.7
Cat	1429	49.30
Monkey	74	2.5
Other animal	41	1.4
Total	2898	100

Cat bite is most common followed by dog bite

Table 2: Distribution Of Animal Bite Victims According To Age Groups And Gender

Category	No of persons	No of cases	Percentage (%)
Total population	200918	2898 (100)	1.44
Male	104253	1478 (51)	1.42
Female	96665	1420 (49)	1.47
Age Groups(in years)			
0-10	32164	820 (28.3)	2.55
10-20	36165	631 (21.7)	1.74
20-30	38174	424 (14.6)	1.11
30-40	32164	513 (17.7)	1.59
Above 40	62269	510 (17.6)	0.82

Figure in Parenthesis denotes column wise percentage among animal-bite victims according to age and sex.

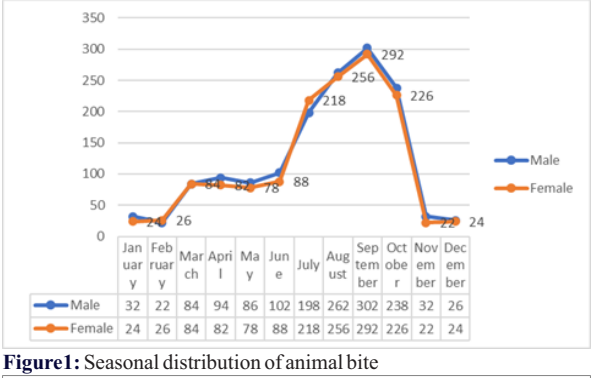

Figure1: Seasonal distribution of animal bite

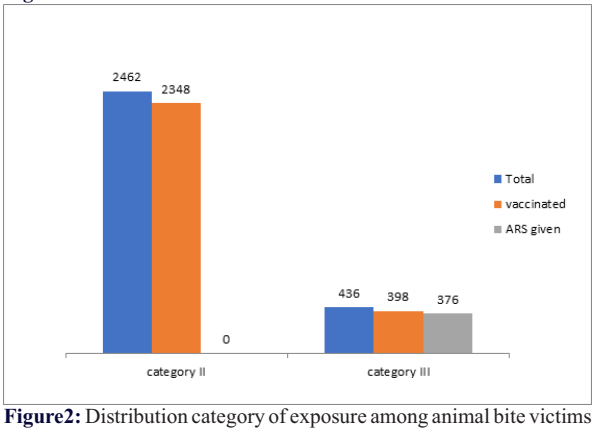

Figure2: Distribution category of exposure among animal bite victims and their management

DISCUSSION

In this study, it is found that majority of the wounds were found in limbs in 2695 (93%) cases. It is followed by wound in other areas like face 104 (3.6%) and back 95 (3.3%).This findings are similar in all ages. In a study it was found that, the most frequently bitten body part was the limbs, children were predisposed to bites on the head and face due to their stature [9].Animals bites to this part of the body especially risky due proximity to the central nervous system and clinical progression to rabies is highly likely if the bite occurs from a rabid animal. It is therefore advisable that such children should receive immediate PEP and rabies immunoglobulin (RIG) as per guidelines under NRCP as soon as possible to prevent any possibilities of getting rabies.

In low income countries, several studies have demonstrated that dogs account for 76 to 94% of animal-bite injuries resulting into high prevalence of rabies and higher fatality rates due to poor access to anti-rabies post exposure treatment [10-12].But in the present study the percentage of cases bitten by dogs is 46.7%.Dogs and cats together contribute about 96% of animal bites. This is probably the abundance of cats in dense domestic catchment area of this health centre. Among other animals contribution of monkeys remains significant (2.5%).On the other hand a study revealed approximately 85 to 90% of human animal-bite injuries are caused by dogs, 5 to 10% by cats and 2 to 3% by humans and rodents.13A study by WHO showed the main biting animal was dog (91.5%), mostly stray (63%), followed by cat (4.7%)[6].

Holzer et al. study (2019)in the United States, the prevalence of animal bite cases between 2010 and 2014 was 0.25 and 0.19%, respectively[13,14].Venkatesan et al. (2014) study in India indicated the prevalence of 81.8% per 1000 population for animal bites[7]. The high incidence of animal bites indicates the need for serious consideration to this issue. In this regard, health authorities should take the necessary measures to limit stray dogs, vaccinate dogs, and develop training programs to make people inform about the complications of animal bites and how to prevent them. The present study reveals that there is almost equal rate of prevalence of animal bite among males and females. This is different from other studies which show males are more vulnerable for animal bite. This study revealed that the percentage of animal bite cases are more among children (2.55%),about double than in other similar age groups. It is also considerably high in the productive age group. But the incidence of animal bites is reduced after the age of 40. According to WHO estimates the annual incidence of animal bites was high, 1.7% and it was more in rural areas (1.8%), children (2.6%) and poor/low income group (75%)[6].

In this study, Category II exposure is found to be most common in about 85% cases. As Category I cases does not need intervention, the records of this type of exposure is not found in Animal Bite exposure register. Even the OPD register does not mention this cases as Category I Rabies exposed cases. As the number of category I patents are not found the percentage of category II patients is showing high. The findings in this study are also showing gap as 5 % of Cat II bites did not get the required vaccine. This marked the large training gap among the care givers, as people who are attending OPD for the reason are denied vaccine. There should be constant supply of the vaccine at the point of care. The rabies immunoglobulin was administered in 13% of total animal bite victims. A report from WHO revealed the use of rabies immunoglobulin was low (2.1%) [6].Attrition was also found in Cat III victims as all the cases under this category did not receive the vaccine. Even immunoglobulin was not administered to all who received the vaccine. It was noticed that cases were admitted for immunoglobulin administration contrary to NRCP guidelines.

CONCLUSION

Dogs and cats are mostly responsible of animal bites in this part of the country. There is need to control stray dogs .Children are found to be most vulnerable for animal bites. There is gap between eligible candidates for vaccine and those who actually received it both in Category II and III animal bite victims.

Conflict Of Interest: None declared

REFERENCES-

1. World Health Organization. Rabies; 2017 [cited 2021 March 12]. Available from: http://www.who.int/mediacentre/factsheets/fs099/en/.
2. World Health Organization. Investing to overcome the global impact of neglected tropical diseases: third WHO report on neglected diseases 2015 [cited 2017 Apr 30]. Available from: http://apps.who.int/iris/bitstream/10665/152781/1/9789241564861_eng.pdf.
3. NRCP
4. Zoonotic Disease Unit (ZDU) Kenya. In: Ministry of Health and Ministry of Agriculture LaF, editor. Strategic Plan for the Elimination of Human Rabies in Kenya 2014–2030; 2014.
5. Obonyo M, Arvelo W, Kadivane S, Orundu M, Lankau E, Gakuya F, Munyua P, Githinji J, Marano N, Njenga K. Investigation to determine staff exposure and describe animal bite surveillance after detection of a rabid zebra in a safari lodge in Kenya, 2011. Pan Afr Med J. 2014;19:10
6. Sudarshan MK, Mahendra BJ, Madhusudana SN, Ashwoath Narayana DH, Rahman A, Rao NS, X-Meslin F, Lobo D, Ravikumar K, Gangaboraiah. An epidemiological study of animal bites in India: results of a WHO sponsored national multi-centric rabies survey. J Commun Dis. 2006 Mar;38(1):32-9.
7. Venkatesan M. An epidemiological study of animal bites and envenomings in a rural district of Tamilnadu,India. Online J Health Allied Sci. 2014;13(4):1
8. Mazigo HD, Okumu FO, Kweka EJ, Mnyone LL. Retrospective analysis of suspected rabies cases reported at Bugando referral hospital, Mwanza, Tanzania. J Global Infect Dis. 2010;2(3):216.
9. Schalamon J, Ainoedhofer H, Singer G, Petnehazy T, Mayr J, Kiss K, Höllwarth ME. Analysis of dog bites in children who are younger than 17 years.Pediatrics.

2006;117(3):e374–9.
10. 10 facts on rabies [http://www.who.int/features/factfiles/rabies/en/]. Accessed 13 Mar 2021.
11. Sambo MB. Epidemiological dynamics of rabies in Tanzania and its impacts on local communities: University of Glasgow; 2012.
12. Knobel DL, Cleaveland S, Coleman PG, Fèvre EM, Meltzer MI, Miranda MEG, Shaw A, Zinsstag J, Meslin F-X. Re-evaluating the burden of rabies in Africa and Asia. Bull World Health Organ. 2005;83(5):360–8.
13. MacBean CE, Taylor DM, Ashby K. Animal and human bite injuries in Victoria, 1998-2004. Med J Aust. 2007;186(1):38.
14. Holzer KJ, Vaughn MG, Murugan V. Dog bite injuries in the USA: prevalence, correlates and recent trends. Inj Prev. 2019;25(3):187–90.