

Anti-rabies prophylaxis among children attending ARV clinic in a tertiary care center, Solapur, India

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ABSTRACT


Background: Children are more prone to dog bites and they are more likely to be injured by dog bites than adult. Although most of the bites are by pet animal and provoked, they may be more severe. The present study was conducted in tertiary care center to study the profile and pattern of dog bites cases in children. **Objectives:** The objective of this study was to study the profile of animal bites cases and observe different practice of wound washing after bite. **Materials and Methods:** A cross-sectional analytical study was conducted among <15-year-old children attending ARV clinic in a tertiary care center from July 2016 to December 2016. After receiving verbal informed consent, a pre-designed and pre-tested questionnaire was used to collect the data from children or their parents. **Results:** Higher proportion of animal bite cases (38.9%) was seen in 5–10 years of age group among all the children with male predominance (73%). The most common site for bite was lower limb, i.e., 49.3%. Among all the children, 44.7% of children did not wash the wound after bite. Among all the category-III animal bite patients, 84.3% received inj. anti-rabies serum. **Conclusion:** Dog bites are more in male children; information, education, and communication activities regarding prevention of rabies are necessary.

KEY WORDS: Animal Bites; Children; Rabies; Wound Washing

INTRODUCTION

Rabies is 100% of fatal disease. Rabies remains an important public health issue worldwide due to the prevalence of endemic animal rabies in developing countries. India accounts for the most deaths in Asia (59.9% of human rabies deaths) and globally (35% of human rabies deaths). The majority of deaths are estimated to have occurred in Asia (59.6%) and Africa (36.4%).^[1] Every day 150 people die of rabies; most of these people are children under 15 years of age; in developing countries, this equates to one dying every 10 min. Although data support the feasibility and practicality

of dog vaccination strategies, there are very little quantitative data on rabies transmission dynamics and the underlying demographic processes.^[2] Children are at higher risk to the animal bite because of their unawareness. Although most of the bites are provoked, they are generally more severe like lacerated wounds and are usually on proximal part of the body including face, neck, and scalp and thus life threatening. Bites by pet animal are more in children than older person followed by stray dogs. Animal bite in the age group of 5–10 years is more common. Many children lack judgment about how to deal with a dog and their inability to fend off an attack may put them at additional risk.^[3] Children do not recognize the angry or defensive behavior of the dog and continue to play with them which the dogs may consider as the invasion of territory and may incite an attack.^[4] More myths, wrong practices are followed after animal bite including applications of local irritants to heal and also during vaccination. This can have impact on health of the child. Treatment from quacks is still prevalent in both urban and rural area which is useless.^[5]

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This study was carried out in a tertiary care center to know profiles of animal bites in children of <15 years age and wound care practices following the animal bite.

Objectives

The objectives of this study are as follows:

1. To study profile of animal bite cases in children
2. To observe different practices of wound washing after bite.

MATERIALS AND METHODS

A cross-sectional analytical study was conducted among <15-year-old children attending ARV clinic in a tertiary care center from July 2016 to December 2016. After receiving verbal informed consent, a pre-designed and pre-tested questionnaire was used to collect the data from children or their parents.

RESULTS

Of the total 2541 cases of animal bite, the number of animal bite cases in children <15 years was found to be 812 (32.95%). It was highest in the month of October, i.e., 38.09% and least in the month of August, i.e., 25.80% but having no specific trend [Table 1].

In the present study, maximum proportion (38.92%) of the animal bite victim children were in the age group of 5–10 years, followed by 10–15 years (31.15%) and 0–5 years of age group (29.93%); regarding category of animal bite victims, most of the children had category-III bite (74.50%)

Table 1: Distribution of animal bite cases in children below 15 years

Month	Total number of cases	Number of children ≤15 years	% of children
July	463	149	32.18
August	376	97	25.80
September	441	120	27.21
October	441	168	38.09
November	398	135	33.92
December	422	143	33.89
Total	2541	812	31.95

Table 2: Age- and category-wise distributions of the study subjects (n=812)

Age group (in years)	Category-I (%)	Category-II (%)	Category-III (%)	Total (%)
0–5	6 (67)	46 (23)	191 (32)	243 (29.93)
5–10	1 (11)	80 (40)	235 (39)	316 (38.92)
10–15	2 (22)	72 (36)	179 (29)	253 (31.15)
Total	9 (100)	198 (100)	605 (100)	812 (100)

$\chi^2=11.90$, $df=4$, $P<0.05$

followed by category-II bite (24%) and showed statistically significant association with age group [Table 2]. Most of the affected children were male and significant association was found between sex and age group [Table 3]. About 89% of cases were victims of dog bite among all the animal bite victims [Figure 1]. Lower limb of patients was the most common site of animal bite followed by upper limbs, trunk, and face/neck and some had multiple bites [Table 4]. We observed that only 8% of children had proper wound care practices by washing the wound with water and applying antiseptics, while 21% practiced only water after the bite. About 6.15% of children had applied irritant such as lime and chilly at the bite site [Table 5]. Out of all the category-III bite cases, 84% of children had received anti-rabies serum (ARS) while remaining 16% did not receive ARS even though belonged to category-III bite.

DISCUSSION

In the present study, one-third of the outpatient department (OPD) patients were children <15 years of age with children aged between 5 and 10 years who were most affected. Most of the children had category-III bite and maximum children had dog bite rather than other animals. On analyzing wound practicing in all bite cases, it was poor; only 8% of patients had done proper wound washing with soap and water following animal bite.

The current study showed that 32.95% visiting to ARV clinic were children <15 years. It was highest in the month of

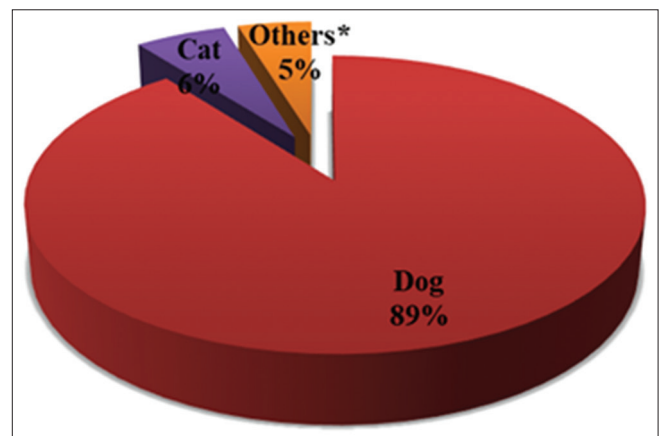


Figure 1: Distribution of children according to animal bites.* Pig, monkey, horse

October and least in the month of August. Similar findings were found by Patle and Khakse,^[5] Panchal *et al.*,^[6] and Behera *et al.*^[7] A study done by Patle and Khakse^[5] found that of the total cases of animal bite, the number of animal bite cases in children below 15 years was 32.98%, it was highest in the month of January and least in the month of April. As the duration of the current study and Patle and Khakse^[5] was different, the highest number of animal bite cases was in different months. Panchal *et al.*^[6] found that out of the total patients attending ARV OPD, 30.25% of children were of age <15 years. Smaller height and lack of inhibition in children in provoking the animals may increase the probability of their being bitten more. In our study, 38.92% of the animal victim children were in the age group of 5–10 years. Nearly 29.9% of children were <5 years which is a serious issue. In a study by Bajwa and Anjum^[8] showed that the prevalence of animal bite was same in children between 5 and 15 years, but cases in the age group of 5 years were 8.6%. In our study, the most common injury site was lower limb. Half of the children had animal bite on lower limb followed by upper limb. Similar finding was found in the study conducted by Vinay *et al.*^[9] Dog as a major biting animal was found in the present study and other studies also agree with this finding.^[10,11] In the present study, near about two-third animal bite victim children were males, probably due to their mobile nature than females. Similar finding was found by Panchal *et al.*^[6] In the present study, 75% of children belonged category-III bite while

only 1.5% were category-I. This also suggests unawareness of people to report to hospital in case of licking by animal. This could also be due to unawareness of children or fear of parents. Similarly, in a study by Behera *et al.*,^[7] majority of cases (95.6%) were having category III exposure and only 0.5% were category-I. Local cleaning of wound with soap and water after animal bite reduces risk by 80%. However, it was not satisfactory in 51% of the children. Almost 6% of the patients performed harmful local traditional practices and applied locally available irritants such as lime paste and chili powder on wound site. A common perception is that local irritability produced by these substances would destroy the rabies virus in the wound site. The present study and studies conducted by Khokhar *et al.*^[12] and Behara *et al.*^[7] found that washing the local wound with water and soap as a first aid treatment was practiced to a lesser extent. Injection ARS is recommended for all the category III wounds; but in the present study, it was taken by 84% of the children. Similarly, Panchal *et al.*^[6] observed that out of all category-III bite cases, 92% of patients received inj. ARS.

Certain demographic factors such as education level of children or their parents and socioeconomic status of children should be taken into consideration behind poor wound washing practices following animal bites which were one of the limitations of the present study.

CONCLUSION

Animal bite is more common among children, especially in males. Dogs were the main biting animal. The bite victims did not take proper measures for wound care or first aid and did not seek care from health facility after the bite. Health-seeking behavior after the bite including self-care and treatment at hospital was not satisfactory in most of patients. Hence, there is a need to conduct information, education, and communication activities regarding severity of animal bite in children and ways to prevent it. Furthermore, information

Table 3: Age-and sex-wise distributions of the study subjects (n=812)

Age group (in years)	Male (%)	Female (%)	Total (%)
0–5	160 (65.84)	83 (34.16)	243 (100)
5–10	225 (71.20)	91 (28.80)	316 (100)
10–15	208 (82.21)	45 (17.79)	253 (100)
Total	593 (70.03)	219 (29.97)	812 (100)

$\chi^2=17.74$, $df=2$, $P<0.05$

Table 4: Distribution of children according to the site of bite

Age group (in years)	Upper limb	Lower limb	Face/neck	Trunk	Multiple	Total
0–5	80 (33)	88 (36)	41 (17)	28 (12)	6 (2)	243 (100)
5–10	83 (26)	156 (49)	25 (8)	43 (14)	9 (3)	316 (100)
10–15	61 (24)	156 (62)	12 (4)	15 (6)	9 (4)	253 (100)
Total	224 (27.59)	400 (49.26)	78 (9.60)	86 (10.59)	24 (2.95)	812 (100)

Table 5: Wound washing practices after animal bite

Age group (in years)	Wound practices				Total
	Not washed	Irritant	Soap and water	Soap and water+antiseptic	
0–5	106	16	54	67	243
5–10	152	18	75	71	316
10–15	105	16	42	90	253
Total	363 (44.70)	50 (6.15)	171 (21.05)	228 (28.07)	812 (100)

about dangers of animal bites as well as the importance of immunization should be included in the school health program.

REFERENCES

1. World Health Organization. WHO Expert Consultation on Rabies, 3rd Report, (WHO Technical Report Series, No. 1012. World Health Organization; 2018. p. 3-6.
2. Hampson K, Dushoff J, Cleaveland S, Haydon DT, Kaare M, Packer C, *et al.* Dynamics and prospects for the elimination of canine rabies. *PLoS Biol* 2009;7:e53.
3. Bariya B, Shringarpure K. Compliance of animal bite patients managed by intramuscular route of anti-rabies vaccination. *Res Rev J Immunol* 2014;4:1-7.
4. Tiwari R, Marathe N, Srivastava D. A retrospective analysis of the patients attending anti-rabies clinic at J.A. group of hospitals, Gwalior. *Assoc Prev Control Rabies India J* 2009;11:24-6.
5. Patle RA, Khakse GM. Clinico-demographic and treatment seeking profile of children below 15 years attending the anti-rabies clinic. *Int J Med Public Health* 2014;4:151-4.
6. Panchal SB, Kulkarni SK, Gattani PL. Study of epidemiological profile and treatment seeking behavior in children attending anti rabies vaccination clinic at a tertiary care center. *Int J Community Med Public Health* 2018;5:4912-5.
7. Behera TR, Satapathy DM, Tripathy RM, Sahu A. Profile of animal bite cases attending ARC. *Assoc Prev Control Rabies India J* 2008;9:15.
8. Bajwa MA, Anjum A, Manzoor S. Dog bites; assessment of burden, determinants and public services available for their victims in district Lahore. *Prof Med J* 2012;19:700-9.
9. Vinay M, Mahendra BJ, Poornima S. Profile of animal bite victims and compliance to the 4 dose IDRV schedule among children attending anti rabies clinics, MIMS, Mandya. *Assoc Prev Control Rabies India J* 2005;11:38-40.
10. Malini S, Satapathy DM, Tripathy RM. An analysis on late reporting of animal bite victims to the ARC of MKCG medical college, Behrampur. *Assoc Prev Control Rabies India J* 2010;12:33-6.
11. Mohanti M, Giri PP, Sahu M, Mishra K, Mohapatra B. A study on the profile of animal bite cases attending the anti-rabies vaccination OPD in SCB medical college and hospital, Cuttack, Orissa. *Assoc Prev Control Rabies India J* 2009;10:22-4.
12. Khokhar A, Meena GS, Mehra M. Profile of dog bite cases attending M.C.D dispensary at Alipur, Delhi. *Indian J Community Med* 2003;28:157-9.

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