

# Clinico-demographic and treatment seeking profile of children below 15 years attending the anti-rabies clinic

## Abstract

**Background:** Rabies being 100% fatal disease, every individual is vulnerable to animal bite irrespective of age, sex and socio-economic status. Children are at greater risk. Though most of the bites are by pet animal and provoked, they are more severe, usually on proximal part of the body including face, neck and scalp and thus life-threatening. **Materials and Methods:** A cross-sectional hospital based study in the anti-rabies vaccination (ARV) clinic from November to April 2013. Every new child below 15 years attending the out-patient department was interviewed along with his parents for demographic data, details of animal bite and treatment received and also myths following animal bite after taking an informed consent using a pre-designed proforma. The results were analyzed by proportion and percentages. **Results:** Prevalence of animal bite in children was found to be 32.98%. It was more in the age group of 5-10 years and rural children. Nearly 23.96% of children were having lacerated wound and 11.75% were having injury on head and face. About 31.12% of the children reported late by 24 h. Local cleaning of wound was not satisfactory in 66.82% of the children. ARV schedule was not completed by 8.99% of the children while anti-rabies serum was not received by 86.16% of children. Myths regarding restrictions of milk and rice were prevalent in 94.56% population. After counseling also 44.67% were reluctant to the advice. **Conclusion:** About one-third of cases being related to children, prevention and control strategies are needed to reduce it.

**Key words:** Animal bite, anti-rabies clinic, children, immunoglobulins, provoked bites, rabies

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## INTRODUCTION

Rabies is a zoonotic disease caused by the bite of infected animal carrying virus in their saliva. It is 100% fatal disease. All the persons irrespective of their age, sex and socio-economic status are susceptible. Children are at higher risk to the animal bite because of their unawareness. Though 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. Still today when treatment options in the form of vaccine, immunoglobulin are available, people as well as health care professional preferably in the peripheral hospitals have not realized its importance and thus treatment received is often not complete and satisfactory.

More myths are followed after animal bite including restriction on different food items such as milk and rice for around a month following bite 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. This study was carried out to know clinico-demographic profile of animal bites in children less than 15 years and also to know myths followed after animal bite.

## Aims and objectives

1. The aim of the present study is to know clinico-demographic profile of animal bites in children >15 years attending anti-rabies vaccination (ARV) OPD.

## MATERIALS AND METHODS

This was a cross-sectional hospital based study done in the clinic of the tertiary care hospital. The study period was for a period of 6 months from November 2012 to April 2013. Daily out-patient department (OPD) attendance at ARV clinic includes around 15-20 new cases of animal bite. Every new child below 15 years attending the OPD was interviewed along with parents or person accompanying the child, after taking informed consent from parents or accompanying person. Using predesigned proforma, they were interviewed for demographic data including age, sex, residence, details of animal bite, treatment received and also myths following animal bite. Details about treatment history included local washing, administration of tetanus toxoid, anti-rabies serum (ARS) and vaccine. Local cleaning of wound was considered satisfactory if the wound was cleaned for about 10 min with soap and water or antiseptic. For classifying the wounds World Health Organization classification of exposure was used.<sup>[1]</sup>

## RESULTS

Of the total cases of animal bite, number of animal bite cases in children below 15 years was found to be 434 (32.98%). It was highest in the month of January and least in the month of April but having no specific trend [Table 1].

In this study, 32.49% of the children were in the age group of 0-5 years which is a serious issue [Table 2]. Nearly 52.53% children were bitten by the stray animal while 44.47% by pet animal. Only ten cases had reported due to wild animal bite. 23.96% of children had lacerated wounds. 44.01% of children were having bite on upper limb followed by 37.10% on lower limbs [Table 3]. When further analyzed, it was found that 51 (11.75%) of the children were having bite on face and head out of which 30 (6.91%) children were having severe lacerated wound. Head and face was a common site in children <5 years of age. 48.39% children were of Category II and 51.61% of Category III bites. No child was of Category I bite [Table 3]. Health seeking behavior was assessed by their time of reporting to the hospital after bite. Only 10.36% of the children had reported to the hospital in less than 1 h. 31.11% of the children had reported after 24 h out of which 16.82% had reported within 3 days and 14.29% after 3 days [Table 4]. 4 (0.92%) children had reported after 15 days of animal bite.

Children under 15 years if completely immunized as per national immunization schedule, don't need post-exposure prophylaxis for animal bite. 261 (60.14%) were completely immunized according to schedule. However, 39.86% had not completed their primary immunization. Hence, they were vaccinated in the OPD with tetanus toxoid [Table 5]. Out of 173 children who were administered with tetanus toxoid, 128 (73.99%) were in the age group of 10-15 years because they had not received dose at 10 years while 37 (21.38%) were in the age group of 5-10 years because they had not received booster dose at 5 years. 8 (4.63%) children were in the age group of 0-5 years because they had not received booster dose at 18 months.

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

Month	Total number of cases	Number of children	Percentage
November	151	43	28.48
December	219	60	27.40
January	248	93	37.50
February	262	88	33.58
March	238	88	36.97
April	198	62	31.31
Total	1316	434	32.98

**Table 2: Demographic profile of children under 15 years attending ARV clinic**

Demographic characters	Number of children	Percentage
Age		
0-5 years	141	32.49
5-10 years	162	37.32
10-15 years	131	30.19
Residence		
Urban	197	45.39
Rural	237	54.61
Sex		
Male	220	50.69
Female	214	49.31

ARV = Anti-rabies vaccination

**Table 3: Distribution of children according to description of wounds in animal bite cases**

Description of wounds	Number of children	Percentage
Animal		
Dog	420	96.78
Cat	4	0.92
Pig	10	2.30
Other	0	0
Status of dog		
Pet	193	44.47
Stray	228	52.53
Wild	13	3.00
Type of wound		
Bite mark	109	25.12
Puncture wound	64	14.75
Abrasion	157	36.17
Lacerated wound	104	23.96
Site of bite		
Upper limb	191	44.01
Lower limb	161	37.10
Head and face	51	11.75
Trunk	4	0.92
Back	27	6.22
Category of wound		
I	0	0
II	210	48.39
III	224	51.61

ARV was advised to all 434 children, but it was not completed by 8.99%. Out of 39 individuals who had not completed schedule, 19 (48.72%) individuals had not received one dose and 20 (51.28%) had

not received 2 doses. It was important that 86.16% children did not receive ARS [Table 5]. Reasons for not receiving ARS were exposure to pet dog, unwillingness to sign the consent. Unavailability of ARS in the hospital along with unwillingness of parents to purchase it because of its cost is another factor.

It was important finding that myths following animal bite cases are very prevalent in the population attending ARV clinic. 410 (94.56%) of the parents said that it is important to avoid rice and milk after dog bite and also during vaccination. 15 (3.62%) had applied oil and turmeric at the site of bite. Although 33 (7.55%) had taken treatment from the traditional quack before coming to hospital. After counseling in ARV OPD about myths it was found that 55.33% of the individuals had started the routine diet to their children while 140 (44.67%) were reluctant to advice. Reason given was pressure by elderly in the house and fear shown by neighbors of developing disease when these restrictions not followed.

**Table 4: Distribution of children according to time of reporting to the hospital**

Time of reporting	Number of children	Percentage
Time of reporting to hospital		
<1 h	45	10.36
1 h-1 day	254	58.53
1 day-3 days	73	16.82
>3 days	62	14.29
Reasons for reporting late (>1 day)*		
Not told by child about bite	59	43.71
Treatment by traditional quacks initially	33	24.44
Unawareness regarding importance of early reporting in bite cases	30	22.22
Animal well and alive	13	9.63

\*135-reported late (>1 day)

**Table 5: Distribution of children according to treatment received after animal bite**

Treatment of wound	Number of children	Percentages
Local cleaning		
Satisfactory	144	33.18
Not satisfactory	290	66.82
Tetanus toxoid		
Completed primary immunization as per national immunization schedule	261	60.14
Tetanus toxoid given	173	39.86
ARS*		
Yes	31	13.84
No	193	86.16
ARV		
Schedule completed	395	91.01
Schedule not completed	39	8.99

\*N = 224 as ARS is indicated in all Category III bites. ARS = Anti-rabies serum, ARV = Anti-rabies vaccination

## DISCUSSION

In this study, almost one-third of the OPD patients visiting to ARV clinic were children less than 15 years. A study done by Behera *et al.*<sup>[2]</sup> and Mohanty *et al.*<sup>[3]</sup> showed prevalence of animal bite in Children from 0 to 14 years to be more than 33%. In a study by Bedi *et al.*<sup>[4]</sup> and Lai *et al.*<sup>[5]</sup> half of the animal bite victims were in children <10 years of age.

In our study, 37.32% of the children were in the age group of 5-10 years. Nearly 32.49% of children were less than 5 years which is a serious issue. In a study by Bajwa and Anjum<sup>[6]</sup> showed 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%. Dog bite mostly by pet or stray dog was the most common similar to those found by Bedi *et al.*<sup>[4]</sup> and Behera *et al.*<sup>[2]</sup> In our study although most common injury was abrasion, around 24% of the children suffered lacerated wounds, thus increasing the severity. However, 11.75% of children had injury on head and face. The injury on head and face was lacerated wound in most of the cases. According to study by Vinay *et al.*<sup>[7]</sup> most common site of bite was lower limb followed by upper limb and head and neck.

In our study none belonged to Category I bite. This also suggests unawareness of people to report to hospital in case of licking by animal. In a study by Behera *et al.*<sup>[2]</sup> majority of cases (95.6%) were having Category III exposure. Only 0.5% were Category I exposure which did not require any treatment. In our study, 58.53% of the children had reported within 24 h of animal bite. Most common reason was delay in the revelation by child about the wound. This could also be because of unawareness of children or fear of parents. Nearly 10.36% of subjects had reported within 1 h of bite. Thus around 69% of the children reported within 24 h which is greater than in most of the studies. In a study by Behera *et al.*<sup>[2]</sup> after exposure, 12.6% of the patients came to ARC within 24 h after exposure. 2.4% of subjects reported to the ARC after 7 days of exposure and 0.5% reported after 1 month of exposure. In a study by Khokkhar *et al.*<sup>[8]</sup> found that 31.03% reported after 24 h.

Local cleaning of wound after animal bite reduces risk by 80%. But it was not satisfactory in 66.82% of the children. During national immunization schedule, five doses of DPT and 2 doses of tetanus toxoid at 10 and 16 years has to be received. However it was incomplete to date in 39.86% of children which is a serious issue. ARS is recommended for Category III wounds. But in our study, it was received by 13.84% of the children. A study by Vinay *et al.*<sup>[7]</sup> found only 8.2% of the Category III patients received ARS, the reasons were almost same in both the studies, also suggests common problems in different regions. Although 91% of the children completed their ARV schedule, 9% had not completed it. They didn't even visit the hospital after missing their schedule. They could not be followed thereafter.

Following the religious customs after bite was found most prevalent with food. Avoidance of rice and milk (white food) was present in 95% children. In a study by Singh and Choudhary,<sup>[9]</sup> 19.2% of the people followed religious customs. 7.55% of patients had visited quacks before being to the hospital.

## CONCLUSIONS

About one-third of animal bite patients were children below 15 years with severe wounds, mainly on proximal part of the body, mostly bitten by stray dogs. Health seeking behavior after the bite including self-care at home, approaching to health facility and treatment at hospital was not satisfactory in most of patients. Myths are also followed after bite and during vaccination also. So there is a need to conduct IEC activities in both rural and urban areas regarding severity of animal bite in children and ways to prevent it. Furthermore information about dangers of animal bites as well as importance of immunization should be included in the school curriculum of children.

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