(e) ISSN Online: 2321-9599

(p) ISSN Print: 2348-6805

Original Article

Assessment of determinants of children with animal bite attending anti-rabies clinics

[1]Santosh Kumar Verma, [2]Samarjit Biswas

[1]Assistant Professor, Department of Paediatrics, Gold Field Institute of Medical Sciences & Research, Faridabad, Haryana, India;
[2]Professor, Department of Paediatrics, Major S D Singh Medical College & Hospital, Farukkhabad, Uttar Pradesh, India

ABSTRACT:
Background: Rabies is a viral disease that affects the central nervous system and can be transmitted from animals to humans through bites or scratches. The present study was conducted to assess determinants of children with animal bite attending anti- rabies clinics. **Materials & Methods:** 48 children with complaint of animal bite of both gendersunderwent a sociodemographic profile and a thorough history of animal bites, including the type of bites, the location of the bite, the amount of time since the bite, the category of exposure, the type of wound, at-home care, clinical therapy, including active and passive immunisation, etc. **Results:** Out of 48 children, boys were 30 and girls were 18. Animal bite category found to be category III in 21, category II in 14 and category I in 13. Types of injuries was abrasion in 24, deep wounds in 11, licking in 6, unprovoked in 4 and provoked in 3. Animal was dog in 37, rat in 7 and monkey in 4 cases. Site was head in 5, trunk in 3, upper limb in 17 and lower limb in 23. Management performed was wound toileting in 21, turmeric application in 14, salt and oil in 3 and soap and water application in 10 cases. Treatment given in Pediatric clinical was active immunization in 32 cases and passive immunization in 16 cases. The difference was significant (P< 0.05). **Conclusion:** Most of children in anti-rabies vaccine OPD had been bitten by dogs.Types of injuries was abrasion, deep wounds, licking, unprovoked and provoked.
Key words: Rabies, Animal, dog

Corresponding author: Samarjit Biswas, Professor, Department of Paediatrics, Major S D Singh Medical College & Hospital, Farukkhabad, Uttar Pradesh, India

This article may be cited as: Verma SK, Biswas S. Assessment of determinants of children with animal bite attending anti-rabies clinics. J Adv Med Dent Scie Res 2014;2(3):346-349.

INTRODUCTION

Rabies is a viral disease that affects the central nervous system and can be transmitted from animals to humans through bites or scratches.[1] While rare, rabies is a serious and often fatal condition if left untreated. Children are particularly vulnerable to rabies due to their smaller size, less developed immune systems, and tendency to interact closely with animals.[2]

Rabies is most commonly transmitted to humans through the bite or scratch of an infected animal, usually a dog, bat, raccoon, fox, or skunk.[3] In rare cases, it can also be spread if infected saliva comes into contact with an open wound, mucous membranes, or the eyes.[4]The initial symptoms of rabies in children can be nonspecific and similar to other common illnesses, such as fever, headache, fatigue, and general discomfort. As the disease progresses, more specific symptoms may appear, including anxiety, irritability, difficulty swallowing, excessive salivation, muscle weakness, and neurological changes.[5]

Despite the fact that all age groups are susceptible, rabies is most frequently diagnosed in individuals under the age of 15; on average, 40% of post-exposure. Children aged 5 to 14 are administered prophylaxis (PEP) across Asia and Africa, with the majority of recipients being male.[6] Between 30 and 60% of rabies cases recorded include children under the age of 15 years. 17.4 million people in Indiaare bitten by animals, mostly dogs, every year and need post-exposure prophylaxis.[7]The present study was conducted to assess epidemiological determinants of children with animal bite attending anti- rabies clinics.

MATERIALS & METHODS

The present study consisted of 48 children with complaint of animal bite of both genders. Parents gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. All patients underwent a sociodemographic profile and a thorough history of animal bites, including the type of bites, the location of the bite, the amount of time since the bite, the category of exposure, the type of wound, at-home care, clinical therapy, including active and passive immunisation, etc.Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 48		
Gender	**Male**	**Female**
Number	30	18

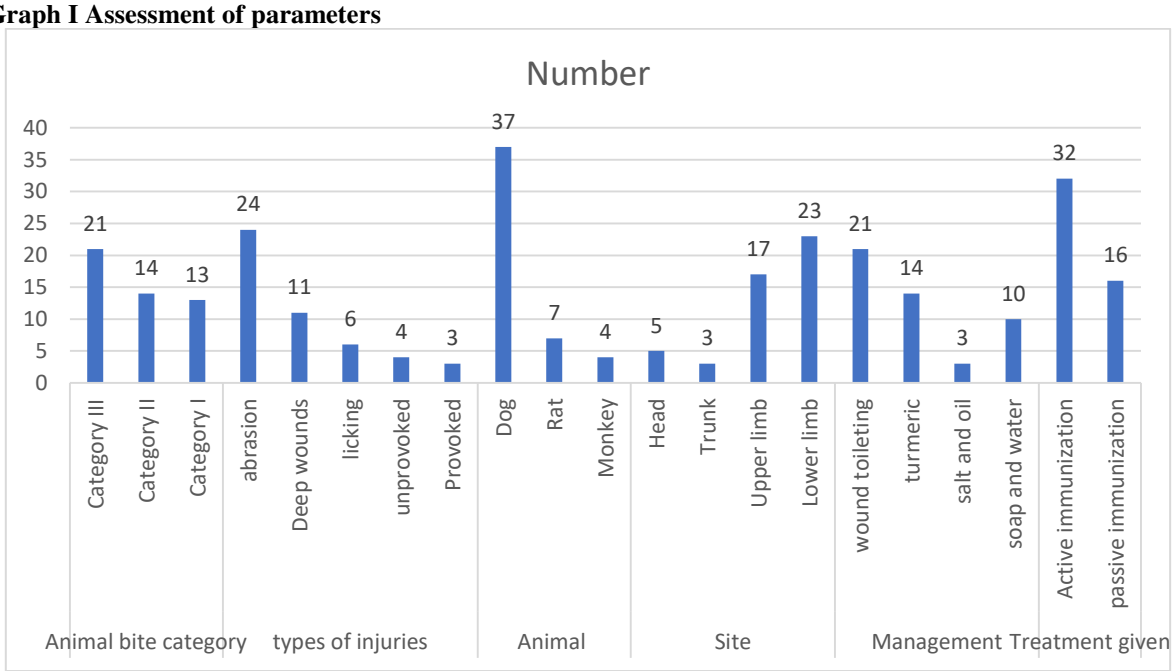
Table I shows that out of 48 children, boys were 30 and girls were 18.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Animal bite category	Category III	21	0.05
	Category II	14	
	Category I	13	
types of injuries	abrasion	24	0.04
	Deep wounds	11	
	licking	6	
	unprovoked	4	
	Provoked	3	
Animal	Dog	37	0.01
	Rat	7	
	Monkey	4	
Site	Head	5	0.02
	Trunk	3	
	Upper limb	17	
	Lower limb	23	
Management	wound toileting	21	0.61
	turmeric	14	
	salt and oil	3	
	soap and water	10	
Treatment given	Active immunization	32	0.01
	passive immunization	16	

Table II, graph I shows that animal bite category found to be category III in 21, category II in 14 and category I in 13. Types of injuries was abrasion in 24, deep wounds in 11, licking in 6, unprovoked in 4 and provoked in 3. Animal was dog in 37, rat in 7 and monkey in 4 cases. Site was head in 5, trunk in 3, upper limb in 17 and lower limb in 23. Management performed was wound toileting in 21, turmeric application in 14, salt and oil in 3 and soap and water application in 10 cases. Treatment given in Pediatric clinical was active immunization in 32 cases and passive immunization in 16 cases. The difference was significant (P< 0.05).

Graph I Assessment of parameters



DISCUSSION

Because the symptoms of rabies in children can be hazy and overlap with those of other juvenile disorders, diagnosing the disease can be difficult.[8] The rabies virus is often detected through laboratory techniques, such as analysing saliva samples, skin biopsies, or cerebrospinal fluid. As soon as symptoms develop, rabies is almost invariably lethal.[9] Therefore, if a youngster is thought to have been exposed to rabies, it is imperative that they receive quick medical care.[10] To stop the virus from spreading inside the body, a series of injections with rabies immune globulin and the rabies vaccine are given as part of the treatment. As soon as possible after exposure, ideally before symptoms appear, this medication should be given.[11]

The most effective means of preventing rabies in children are immunisation and education. Particularly if they reside in or plan to travel to locations where rabies is common, it is crucial to make sure that kids get the appropriate rabies vaccinations. The danger of exposure can also be decreased by teaching kids about animal safety, including avoiding stray animals and not approaching or handling wild animals.[12]The present study was conducted to assess epidemiological determinants of children with animal bite attending anti- rabies clinics.

We found that out of 48 children, boys were 30 and girls were 18.Thakre et al[13] assessed determinants of children with animal bite. Out of 50 patients 74% were male and 26% were female. Majority of patients i.e. 94% were from urban areas and only 6% were from rural areas.74% animal bites were of category III with 69% being unprovoked.72% injuries were of abrasion type and 24% were deep wounds and only 4% were licking type of wound. Maximum number i. e. 70% bites were on lower limb, 20% were on upper limb and only 6% on trunk and 4% were on head. Wound toileting was done by 58% of patients and 26% patients had given history of local application of turmeric. Out of total patients, 80% were of dog bites, 12% were pig bites followed by 6% monkey bites and 2% cat bites. Active immunization (Anti rabies vaccine) was administered to 56% of cases whereas passive immunization (Immunoglobulin - equirab) was given to 20% cases.

We found that animal bite category found to be category III in 21, category II in 14 and category I in 13. Types of injuries was abrasion in 24, deep wounds in 11, licking in 6, unprovoked in 4 and provoked in 3. Animal was dog in 37, rat in 7 and monkey in 4 cases. Site was head in 5, trunk in 3, upper limbin 17 and lower limb in 23. Management performed was wound toileting in 21, turmeric application in 14, salt and oil in 3 and soap and water application in 10 cases. Treatment given in Pediatric clinical was active immunization in 32 cases and passive immunization in 16 cases. Bernardo et al[14]described the characteristics of dog bite injuries to aid in promoting healthy environments for children.Children < or = 5 years of age accounted for 49% of the injuries. The biting dog's owner was generally a parent or neighbor. Only 2 children received rabies prophylaxis.Parents and children need information about safe interactions with dogs, including community leash laws and quarantine guidelines. Nurses should know the procedures for reporting dog bite injuries to local health authorities. Interested nurses can find many opportunities to assist with community safety campaigns.

Tepsumethanonet al[15]revealed that 52 per cent of children had pet mammals in their home of which 67 per cent were dogs. 23.6 per cent of these children gave at least one history of a mammal bite inside (53.4%) or outside (46.6%) their house. Mammal bites of children could be found at all ages. However, most were in the age group of 10-14 years (42.3%), and 5-9 years (39.7%). The most common site of injury was on the legs (56.6%) and hands (30.7%). 31.7 per cent and 68.3 per cent of the bitten children incurred WHO category II and III potential rabies exposures (moderate and severe). 61.9 per cent had performed wound cleansing on each bite injury site and 34 per cent did not. 72 per cent of the children who had mammal bites received no post-exposure rabies treatment and 85.7 per cent did not make any effort to capture or observe the animal who had bitten them. Only 10.6 per cent observed the animals for 10 days or more. It was concluded that children are at considerable risk of mammal bites and that they are not receiving optimal care in this canine rabies endemic region and that 50 per cent of human rabies cases in Thailand were in children under 15 years of age.

The limitation the study is small sample size.

CONCLUSION

Authors found that most of children in anti-rabies vaccine OPD had been bitten by dogs.Types of injuries was abrasion, deep wounds, licking, unprovoked and provoked.

REFERENCES

1. Osaghae DO. Animal and human bites inchildren. West Afr J Med. 2011 NovDec;30(6):421-4.
2. Manjunath M, Subhas Babu P, Vinay M, Nagaraja Goud B, Harish B R, Anil Kumar K, et al. Factors influencing Intra-annual variation in the number of animal bite cases among children aged less than 15 years of age attending Anti Rabies Clinic in Mandya city. APCRI journal 2012;14(1):16-19.
3. Human and Animal Rabies - Human Rabies" http://www.who.int/topics/rabies/en/ st accessed on 1 June 2012.
4. Human and Animal Rabies - Human Rabies" http://www.who.int/topics/rabies/en/ st accessed on 21 June 2012.
5. Brossat JY, Cerf P, Zeller H, Coulanges P. Evidence for a non-specific immunostimulating effect on anti-rabies vaccine of the Fermi type on the Klebsiella pneumoniae system – mice. Arch Inst Pasteur Madagascar. 1981; 48(1):269–78.

6. Gorshunova LP, Bektemirov TA, Gumennik AE, Gogbaidze GA. Non-specific defense reactions in the central nervous system following antirabies vaccination. VoprVirusol. 1970;15(5):610–2.
7. Hooper DC, Pierard I, Modelska A, Otvos L, Fu ZF, Koprowski H, et al. Rabies ribonucleocapsid as an oral immunogen and immunological enhancer. Proc Natl Acad Sci. 1994;91(23):10908–12.
8. Brossat JY, Cerf P, Zeller H, Coulanges P. Evidence for a non-specific immunostimulating effect on anti-rabies vaccine of the Fermi type on the Klebsiella pneumoniae system – mice. Arch Inst Pasteur Madagascar. 1981; 48(1):269–78.
9. Gorshunova LP, Bektemirov TA, Gumennik AE, Gogbaidze GA. Non-specific defence reactions in the central nervous system following anti-rabies vaccination. VoprVirusol. 1970;15(5):610–2.
10. Hooper DC, Pierard I, Modelska A, Otvos L, Fu ZF, Koprowski H, et al. Rabies ribonucleocapsid as an oral immunogen and immunological enhancer. Proc Natl Acad Sci. 1994;91(23):10908–12.
11. Friede T, Schmidli H. Blinded sample size reestimation with count data: method and application in multiple sclerosis. Stat Med. 2010;29:1145–56.
12. Schneider S, Schmidli H, Friede T. Blinded and unblinded internal pilot study designs for clinical trials with count data. Biom J. 2013;55(4):617–33.
13. Thakre SS, Sukhsohale ND, Akre C, Pande S, Pande SS. Epidemiological determinants of children attending anti rabies vaccination clinic. Journal of the Pediatrics Association of India. 2013 Oct 1;2(4):158.
14. Bernardo LM, Gardner MJ, O'Connor J, Amon N. Dog bites in children treated in a pediatric emergency department. J Soc PediatrNurs. 2000 Apr-Jun;5(2):87-95.
15. Tepsumethanon S, Tepsumethanon V, Wilde H. Risk of rabies after mammal bites in Thai children. J Med Assoc Thai. 2002 Jan;85(1):77-81.