RESEARCH ARTICLE

CURRENT PRACTICE IN MANAGEMENT OF ANIMAL BITES IN FIRST REFERRAL UNIT OF AHMEDABAD, GUJARAT

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DOI: 10.5455/ijmsph.2014.181020141 Received Date: 31.07.2014 Accepted Date: 16.08.2014

ABSTRACT

Background: Rabies is a zoonotic disease, which is caused by animal bites. Dog bites are responsible for 99% of rabies cases. Post-exposure prophylaxis with anti-rabies vaccine is the only way to prevent rabies infection.

Aims and Objectives: To analyze the magnitude of animal bite and actual practices following such bites, and to evaluate the quality of care delivered to the victim of animal bite in community health centers (CHCs).

Materials and Methods: A hospital-based cross-sectional study was carried out in Rural Health Training Center of NHL Municipal Medical College (Singarva CHC), Ahmedabad, Gujarat, India. Total 580 animal bite cases were interviewed with pretested questionnaire during November 2012 to January 2013.

Results: In our study, median age of the study population was 22 years; 4% of patients were below 5 years of age. Majority of bites were due to dogs (98%) followed by monkeys (1%) and cats (1%). Bites in male subjects were 76%. Class II bites constituted 91%. Most common site of bites was legs (61%) followed by hands (16%) and thighs (10%). Timing of the bites showed that 42% bites occurred in the evening, about 33% in the morning, and 23% in the afternoon. Majority of cases (60.3%) were reported within 24 h after bite and 2% cases after 5 days. Total 72% patients have missed one or more doses. Among them, default for second dose was 19% followed by 21% for third dose. Fourth and fifth doses were missed by 26% and 34% patients, respectively. 27%, 31%, 24%, and 17% delayed dose were found in second, third, fourth, and fifth doses, respectively.

Conclusion: Majority of patients believed that anti-rabies vaccine is not given on Sunday, and it is the most common cause for delayed dose. Proper counselling at the time of first dose is needed.

Key Words: Dog Bite; Anti-Rabies Vaccine; Delay; Default; Education

Introduction

The word rabies comes from the Sanskrit word *rabbah*, which means "to do violence." The Italian physician Girolamo Fracastoro described the disease as "the incurable wound" in 1584. Rabies is still endemic due to the large reservoirs of rabies in global wild and domestic animal population.[1]

Rabies is prevalent worldwide. Despite the tremendous progress in the fields of preventive medicine and vaccinology, rabies is widely prevalent in India, causing extensive morbidity and mortality. Almost 65,000 people across the globe and 20,000 people in India die of rabies every year.[2]

Most of the deaths are due to ignorance and lack of access to affordable services.[3] Although effective and economical control measures are available, rabies remains a neglected disease throughout these countries. The dogs constitute nearly 96% of the source of infection.[4] No comprehensive treatment is possible after clinical occurrence of rabies. Post-exposure prophylaxis (PEP) is the only way to prevent rabies.[5] Many myths and false beliefs are associated with wound management such as application of oils, herbs, and red chilies on the wounds.[6]

The objectives of our study were to analyze the current practice (PEP) after animal bites in Singarva community health center (CHC) and to evaluate the quality of care delivered to the victim of animal bite in the CHC, and also the impact of educational intervention on their practice.

Materials and Methods

A hospital-based cross-sectional study was carried out in Rural Health Training Center of NHL Municipal Medical College (Singarva CHC), Ahmedabad, Gujarat, India. All subjects with animal bites attending Singarva CHC for anti-rabies vaccine (ARV) during November 2012 to January 2013 were included in the study. Total 580 cases of animal bites were interviewed with pretested questionnaire. A detailed history was taken, and all relevant data pertaining to age, sex, type of dog, site of bite, interval between the dog bite and arrival for vaccination, and so on were noted for every subject included in the study. According to the site and severity, wounds were classified into classes I, II, and III. Data collected in November were reviewed for noncompliance

to correct the ARV schedule. The reasons were noted, and we started giving detailed information regarding the ARV schedule, its importance, and writing it in local language. Those patients whose subsequent doses were in February 2013 were excluded from the study.

Statistical Analysis

Data are expressed as mean ± SD. For statistical comparisons, χ^2-test and *Z*-test were used, and *p*-value of <0.05 was considered to be statistically significant.

Results

In our study, the median age of study population was 22 years (±SD 17.5 years). Two-third of patients were below 15 years of age (range 1–90 years). Age-wise distribution of patients is given in Table 1. Majority of bites were due to dogs (98%) followed by monkeys (1%) and cats (1%). Bites in male subjects were 76%. Detail of animal bites is given in Table 2.

Table-1: Age-wise distribution of patients

Age group (years)	Male	Female	Total	*p*-Value
<5	16 (3.6)	8 (5.8)	24 (4.0)	
5–14	134 (30.4)	42(30.2)	176 (30.3)	
15–44	221 (50.1)	60 (43.2)	281 (48.4)	
45–59	43 (9.8)	24 (17.3)	67 (11.6)	0.072
≥60	27 (6.1)	5 (3.6)	32 (5.5)	
Total	441 (76.0)	139 (24.0)	580 (100.0)	
Mean ± SD	26.0 ± 17.5	26.1 ± 17.8	26.1 ± 17.5	

Figures in parentheses indicate percentage.

Table-2: Characteristics of animal bites

Type of animal	Dog	436 (98.8)	136 (97.8)	572 (98.6)	
	Monkey	4 (0.9)	1 (0.7)	5 (0.9)	0.57*
	Cat	1 (0.2)	2 (1.4)	3 (0.5)	
Site of bite	Leg below knee	312 (70.0)	43 (30.90)	355 (61.2)	
	Upper limb	71 (16.1)	23 (16.4)	94 (16.2)	
	Thigh and gluteal	33 (7.4)	11 (7.9)	44 (7.6)	
	Multiple bites	8 (1.1)	4 (2.8)	12 (2.1)	-
	Face	5 (1.1)	2 (1.4)	7 (1.2)	
	Abdomen	2 (0.4)	1 (0.7)	3 (0.5)	
Timing of bites	Evening	191 (43.3)	56 (40.2)	247 (42.6)	
	Morning	152 (34.4)	44 (31.6)	196 (33.8)	0.36
	Afternoon	98 (22.2)	39 (28.1)	137 (23.6)	
Severity of bites	Class I	23 (5.2)	7 (5.0)	30 (5.1)	
	Class II	405 (91.8)	126 (90.6)	531 (91.6)	0.73
	Class III	13 (2.9)	6 (4.3)	19 (3.3)	
Household treatment (252, 43%)	Chili powder	131 (72.4)	48 (66.7)	179 (71.1)	
	Chhikani	35 (19.3)	16 (22.2)	51 (20.2)	
	Tobacco	7 (3.9)	6 (8.3)	13 (5.1)	-
	Lime	7 (4.4)	2 (2.8)	9 (3.9)	

*Figures in parentheses indicate percentage. * p-Value was calculated using Fischer's exact test after pooling of bite by cat and monkey.*

Majority of cases (58%) were reported within 24 h after bite. Delay of more than 3 days from the first dose was considered as delayed dose for second dose. For third dose, it was more than 7 days from the second dose; for fourth dose, it was more than 14 days from the third dose; and for fifth dose, it was more than 28 days from the fourth dose. Around one-third of patients had delayed dose. Total 72% patients have missed one or more doses. Detail of delayed dose and defaulter of the ARV schedule is given in Table 3.

Table-3: Distribution of the ARV doses according to delay and defaulter

Time duration b/w animal bite and treatment (*n* = 580)	**Duration (hour)**	**No. (%)**
	<24	350 (60.3)
	25–72	209 (36)
	73–120	10 (1.7)
	>120	12 (2)
Delayed doses of ARV among cases (*n* = 206, 34%)	**Dose**	**No. (%)**
	Second	56 (27.2)
	Third	64 (31.1)
	Fourth	50 (24.3)
	Fifth	36 (17.5)
Reasons for delay (*n* = 206)	**Reasons**	**No. (%)**
	Lack of awareness of availability of ARV on Sunday or holiday	93 (44.6)
	Social event	62 (30.1)
	Not able to read	30 (14.5)
	Forgot	12 (5.8)
	Not necessary on the same day	8 (4.8)
Defaulter of different ARV doses (*n* = 432, 74%)	**Dose**	**No. (%)**
	Second	82 (19.0)
	Third	91(21.1)
	Fourth	112 (25.9)
	Fifth	147 (34.0)

Figures in parentheses indicate percentage.

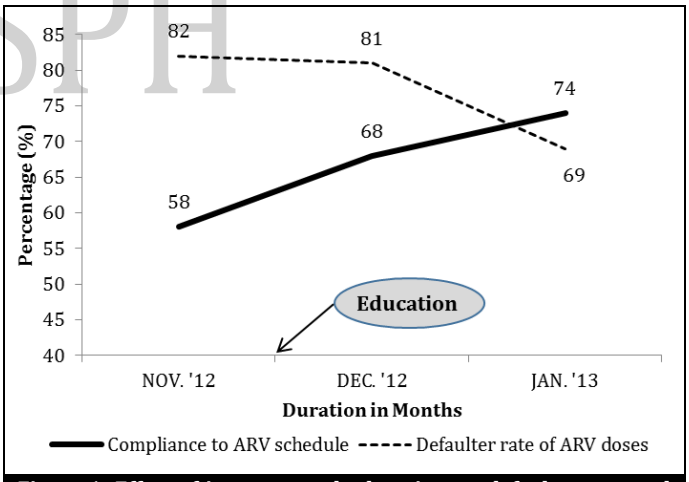

Figure-1: Effect of interpersonal education on defaulter rate and compliance to the anti-rabies vaccine (ARV) schedule

Because of the interpersonal detailed education proportion of delayed dose, significant reduction was observed from 42% (November 2012) to 26% (January 2013) (Z = 2.96, p < 0.05). Compliance to the ARV schedule was also found to significantly improve from 58% (November 2012) to 74% (January 2013) (Z = 3.03, p < 0.05).

Discussion

Rabies, an almost invariably fatal disease, continues to be

the most serious and most dreaded disease associated with dog bite.[7] Mean age of the study population was 26 years. Only 4% of patients were below 5 years of age. Three-fourth of the cases were in the age group of 5–45 years. Similar finding was observed in a study conducted in a rural field practice area of the Centre for Community Medicine, All India Institute of Medical Sciences (AIIMS), New Delhi, India.[8] Majority of bites were due to dogs (98%), and this is also observed in other studies.[9]

Most common site of bites was legs (68%) followed by hands (15.5%). Timing of the bites showed that 42.6% bites occurred in the evening, about 36.6% in the morning, and 23.6% in the afternoon. Two-third of the patients used chili powder to the affected parts immediately after the bite. Similar finding was observed in a study conducted by AIIMS, New Delhi.[8]

Only half of the cases were reported within 24 h after bite. Around one-third of the patients had delayed dose. 27.2%, 31.1%, 24.3%, and 17.5% delayed dose were found in second, third, fourth, and fifth doses, respectively. Most common (45%) cause for delayed dose was lack of awareness regarding availability of the ARV on Sunday as well as on public holiday. Total 72% patients have missed one or more doses. Among them, default for second dose was 19% followed by 21.9% for third dose. Fourth and fifth doses were missed by 25.5% and 34% patients, respectively

As shown in this study, the doctor should write the ARV schedule in local language. At the first visit, patient should be given detailed information regarding the risk of exposure to animal bites, the ARV schedule, and its availability. Rabies awareness campaigns should be launched, and pet enumeration, licensing, and vaccination should be made compulsory.

Conclusion

Majority of patients believed that anti-rabies vaccine is not given on Sunday, and it is the most common cause for delayed dose. Proper counselling at the time of first dose is needed.

References

1. Sacks JJ, Kresnow M, Houston B. Dog bites: How big a problem. Inj Prev 1996;2(1):52–4.
2. World Health Organization. Assessing Burden of Rabies in India. Association for Prevention and Control of Rabies in India (APCRI), 2011. Available at: http://rabies.org.in/rabies/wpcontent/uploads/2011/whosurvey.pdf (last accessed on April 16, 2014).
3. India has highest rabies deaths in world. The Times of India. March 19, 2010. Available at: http://articles.timesofindia.indiatimes.com/2010-03-19/mysore/28142580_1_rabies-deaths-apcri-vaccine (last accessed on June 18, 2014).
4. Park K. Epidemiology of communicable diseases. In: Park's Textbook of Preventive and Social Medicine, 21st edn. Jabalpur: Banarsidas Bhanot, 2011. p. 146.
5. Bassin SL, Rupprecht CE, Bleck TP. Rhabdoviruses. In: Principles and Practice of Infectious Diseases, Mandell GL, Bennett JE, Dolin R (Eds.), 7th edn. New York: Churchill Livingstone, 2010. pp. 2249–58.
6. Sekhon AS, Singh A, Kaur P, Gupta S. Misconceptions and myths in the management of animal bite case. Indian J Community Med 2002;27:9–11.
7. Berzon DR, Farber RE, Gordon J, Kelley EB. Animal bites in a large city: A report on Baltimore, Maryland. Am J Public Health 1972;62:422–6.
8. Agarwal N, Reddaiah VP. Knowledge, attitude and practice following dog bite: A community-based epidemiological study. Health and Population. Perspective and Issues 2003;26(4);154–61.
9. National Institute of Communicable Diseases. Rabies: A major public health problem. CD Alert, Vol. 4, No. 10, Oct. 2000, Delhi.

Cite this article as: Patel PG, Solanki NV, Balaramanamma DV, Brahmbhatt MM. Current practice in management of animal bites in First Referral Unit of Ahmedabad, Gujarat. Int J Med Sci Public Health 2014;3:1528-1530.
Source of Support: Nil
Conflict of interest: None declared