Int J Biol Med Res. 2013; 4(2): 3115-3117

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International Journal of Biological & Medical Research

Journal homepage: www.biomedscidirect.com

Original Article

A one year retrospective study of snake bite cases admitted in a tertiary care hospital of western maharashtra.

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ARTICLE INFO

Keywords:
Demographic characteristics
Poisonous snake bites
Neurotoxic
Vasculotoxic

ABSTRACT

Aim: To determine the demographic characteristics & determinants of the outcome of Snake bite cases. METHODOLOGY: A Hospital record based retrospective study (Dec. 2010 to Nov.2011) was carried out & information regarding demographic characteristics & determinants of outcome of Snake bite cases were entered in a pre-structured proforma. The data was analyzed using standard statistical methods. RESULTS: During the one year study period, 146 cases of snake bite were hospitalized. 65 % were Males & 35% Females. 16 – 45 year age group accounted for 61.64% of cases. Majority of cases were from rural area (78%). 37.6% cases occurred during July to September (rainy season). Lower limb was the most common site of bite (52%). 106(72.6%) cases were due to non poisonous snake bites & 40 (27.4%) were due to poisonous snake bites (Vasculotoxic 22.6% & Neurotoxic 4.8%). Cellulitis (84.4%) was the most common complication followed by acute renal failure (6.25%) & respiratory paralysis (6.25%). Out of 40 poisonous snake bite cases only 3 died (1 Vasculotoxic & 2 Neurotoxic).Time lapse has a significant role on the outcome of the patients. Most of the patients were hospitalized for 1-4 Days. CONCLUSION: Snake bites are common in rural population of developing countries. There is need to educate the people about the hazards of Snake Bite, early Hospital referral & treatment.

1. Introduction

Snake Bite is a common medical emergency. Although the majority of snake bite cases are due to non-venomous snakes, venomous bites cause significant morbidity & mortality, if treatment measures, especially anti-venom therapy, are delayed [1]. Snakes bite millions of people annually creating one of the most neglected health problem of the Tropics due to lack of anti-venoms. Contributing to this, in developing nations, there are also deficiencies in the management of complications, transport, hospital equipments & public knowledge of appropriate first aid, which result in a mortality rate one hundred fold higher than in developed Countries. The victims of Snake Bite are mainly from the rural population, bitten during field work & because of habit of sleeping outdoors [2].

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2. Material & Methods

A Hospital record based retrospective study carried out at the Record section of Govt. Medical College Miraj, Maharashtra. Records of the patients admitted over the period of 1 year (Dec 2010 – Nov 2011) analyzed with due permission from the concerned authorities of the institute. Relevent information was entered in a pre-structured proforma and included age, sex, residence, site of bite, type of snake poison, time interval between snakebite and initiation of treatment, and the outcomes of snakebite cases. Cases where the patients were 'discharged against medical advice', Cases of 'unknown' bites & whose outcome is not recorded were excluded. The statistical tests applied were percentage, Chi- Square test & Chi- Square for goodness of fit.

3. Results

During the one year of study period, 146 cases of snake bite were hospitalized. Males outnumbered (95 cases, 65 %) Females (51 cases, 35%). 16 – 45 year age group accounted for 61.64% of cases. 114 cases, 78.1% were from rural area. Out of total 3 deaths, 1 (33.3%) was from rural area while 2 (66.7%) were from urban

area. No significant association was found between the residence and No. of cases survived/died. (χ^2=3.694, df=1, p>0.05) [Table 1] 48.6% cases occurred during June to September, the rainy season in this area. Significant association was found between snake bite & season. (χ2 for goodness of fit=15.61, df=2, p<0.001.) Snake bite was most common during morning hrs i.e. from 6 am to 12 pm. (38.4 % cases) & evening hrs 6 pm onwards. Chances of snake bite are more during morning hours when majority of rural people are working in the fields & evening while they are coming back to home. [Table 2]

Among 146 cases, 106 (72.6%) cases were of non-toxic snake bite, while 33 (22.6%) were of vasculotoxic & remaining i.e. 07 (4.8%) were of neurotoxic snake bite. Non-toxic snake bite was most common. Mortality from Neurotoxic venom was 28.6% while from Vasculotoxic venom it was only 3%. The difference in mortality from these venoms was statistically significant (χ2=5.53, df=1, *p<0.05*).

57.5% patients were admitted within 2 hours of bite. There is significant association between time lapse before hospitalisation & death rate. (χ2=6.03, df=2, p<0.05). [Table 3]

Lower limb was the most common site of bite (52%) followed by upper limb (45.2%). Cellulitis (84.4%) was the most common complication followed by acute renal failure (6.25%) & respiratory paralysis (6.25%). Mean duration of hospital stay was 3.9 ± 2.6 days. [Table 4]

Table No. 1: Demographic characteristics of snake bite cases

Age (yrs)	Male		Female		Total	
	No.	%	No.	%	No.	%
<15	13	13.7	7	13.7	20	13.7
16-30	34	35.8	10	19.6	44	30.1
31-45	22	23.2	24	47.1	46	31.5
46-60	19	20	5	9.8	24	16.4
>60	7	7.4	5	9.8	12	8.2
Total	95	100	51	100	146	100

Residence	Survived		Died		Total Cases	
	No.	%	No.	%	No.	%
Rural	113	79	1	33.3	114	78.1
Urban	30	21	2	66.7	32	21.9
Total	143	100	3	100	146	100

χ^2=3.694, df=1, p>0.05

Table 2: Snakebite incidence According to season & Time of bite.

Month of bite	Total cases	
	No.	%
Feb.- May	35	24
June-Sept.	71	48.6
Oct.-Jan	40	27.4
Total	146	100
χ2 for goodness of fit=15.61, df=2, p<0.001		
Month of bite	**Total cases**	
	No.	**%**
6.01am-12pm	56	38.4
12.01pm-6pm	35	23.9
6.01pm-11.59pm	42	28.8
12am-6am	13	8.9
Total	146	100

Table 3: Nature of snake bite, Time lapse before hospitalization & its relation with Death

Nature	Cases		Deaths		
	No.	%	No.	%	
Vasculotoxic	33	22.6	1	3	χ^2=5.53
Neurotoxic	07	4.8	2	28.6	df=1, p<0.05
Non-Toxic	106	72.6	0	0	

Time Lapse before Hospitalization (in hours)	Cases		Deaths		
	No.	%	No.	%	
< 2 hrs	84	57.5	1	33.3	χ^2=0.704, d
≥2 hrs	62	42.5	2	66.7	f=1, p>0.5
Total	146	100	3	100	

Table 4: Hospital stay, site of bite & complications of snake bite.

Hospital Stay (in days)	Cases	
	No.	%
1 to 4	111	76.1
5 to 8	18	12.3
>8	17	11.6
Total	146	100
Site of Bite		
Upper Limb	66	45.2
Lower Limb	76	52.1
Trunk	4	2.7
Total	146	100
Complications		
Cellulitis	27	84.4
Gangrene	1	3.2
Acute Renal Failure	2	6.2
Respiratory Failure	2	6.2
Total	32	100

4. Discussion

In present study, snake bite was most common in 16-45 year age group (61.64%) & proportion of males 95 (65%) were more as compared to females consistent with the other studies[3-8] but in contrast with the study by Chew et al in which snake bite was more common in 10-19 year age group1. Males in this age group are more active in outdoor activities hence more prone to snake bite. Majority of snake bite cases were from rural areas (78%). Housing conditions & agricultural work are favourable for the human & snakes contact. Most snake bites occur during monsoon season because of flooding of the habitat of snakes & their prey. Snake bite was most common during morning hours (38.4%) in comparison with the study by Chew et al in which it was more common during evening hrs.1.Prognosis of snake bite not only depends on hospital treatment but also on other factors like time lapse before hospitalisation & type of venom. All 3 patients died when time lapse before hospitalisation was 2-6 hours. Mortality from neurotoxic snake bite was higher (28.6%) than that from vasculotoxic snake bite as neurotoxic venom causes respiratory paralysis and immediate death. Cellulitis 27 (84.4%) was most common complication followed by acute renal failure, 2 (6.25%) in case of vasculotoxic snake bite & respiratory paralysis 2 (6.25%) was most common in case of neurotoxic snake bite. The overall mortality rate among study group was (2%) which was lower as compared to mortality rate of North Indian hospital (3.5%) 2. Case fatality rates greater than 20% have been reported in hospitalized victims in Nepal.[9]

5. Conclusion

Snake bites are more common in rural population. Time lapse before hospitalisation & type of venom has a significant role on the outcome of patients & it is associated with the increased complications & deaths. Rural infrastructure should be well equipped to manage snake bite cases. IEC activities should be strengthened to educate the rural people about hazards of snake bite, early hospital referral & treatment.

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