Study of Snake Bite Cases at Tertiary Care Hospital at Shrirampur of Ahmednagar, District of Maharashtra

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Abstract:

Background: Poisonous snake bites are medical emergencies and can be deadly fatal if not treated early. In India majority of the population lives in rural areas where incidence of snake bite is high and they are the one who are deprived of tertiary health care. **Aims**: This study was aimed to assess socio-demographic factors of patients presenting with snake bite. **Materials and methods**: This was a retrospective record based study conducted at St. Luke's Hospital, Shrirampur Dist. Ahmednagar (Maharashtra) consists of 302 snake bite, over a period of two years from January 2007 to December 2008. A predesigned and pretested questionnaire was used for the data collection. **Results:** In the present study, out of total 302 patients, 196 (64.90%) were males and 106 (35.09%) were females. In majority (47.68%) of cases snake bite took place in the evening. In maximum cases the bite mark were seen on lower limb (58.27%). 206 (68.21%) cases of snake bites were in farm/ field followed by garden 50 (16.55%). Majority of incidence of snake bite was amongst those directly involved in the agricultural work (74.50%).

Key words: Snake bite, occupational hazards, agricultural workers

Introduction

Snake bite is a major public health problem throughout the World, especially in tropical countries like India. Snake bite is known to the humankind from antiquity and has been described in some of the oldest myths and medical writings. Snake bite is one of the commonest causes of morbidity and mortality in India, particularly in rural areas. All the snakes are commonly considered by layman to be poisonous, in the sense that venom in their saliva is sufficient to kill or paralyze their prey. But realty is different, in fact that the majority of snakes are non-poisonous. Snakes are found all over the world except Arctic, New Zealand and Ireland.[1] There are about 2500 species of snakes in the world and they pre-dominate in warm climates and bushy regions of the tropics. In India 216 species of snakes are found, out of which only 52 species are poisonous.[2] According to WHO survey, the annual incidence of deaths caused by snake bite in various part of the world has been reported to be 40,000; statistics based on hospital records in developing countries are fallacious because most victims prefer to be treated by traditional healer and do not go to hospital.[3] Poisonous snake bites are medical emergencies and can be deadly fatal if not treated early. It is an occupational hazard among farmers, plantation workers. In India Majority of the population lives in rural areas where incidence of snake bite is high and they are the one who are deprived of tertiary health care. In India most of the affected persons are farmers or persons working in the field.[4] In the state of Maharashtra, the deaths are with rate 2.1 deaths/lakh/year.[5]

Hence, the present study was undertaken to assess the risk factors and socio-demographic factors of patients presenting with snake bite so as to suggest preventive strategy to reduce the morbidity & mortality from snake bite.

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Material and Methods

A retrospective record based study was carried out at St. Luke's Hospital, Shrirampur Dist. Ahmednagar (Maharashtra) over a period from January 2007 to Dec. 2008. Total 302 snake bite patients took treatment at St. Luke's hospital. A predesigned and pretested questionnaire was used for the data collection such as age, sex, occupation, time of bite, site of bite, place of bite, duration between bite and treatment of patients and outcome. Data was analyzed in the form of percentages and proportions and chi-square test was applied.

Results

It was observed from Table -1

that out of total 302 patients, 196 (64.90%) were males and 106 (35.09%) were females. Majority of the patients 179 (59.27%) belonged to 21-40 years of age group. Male to female ratio was 1.84:1 which shows male predominance.

It can be seen from table-2 that majority cases 144 (47.68%) were bitten at evening followed by morning 68 (22.51%) and night 51 (16.88%). It was statistically significant ($P < 0.001$).

It is evident from table-3 that in maximum numbers of cases the bite mark were seen on lower limb 176 (58.27%) as compared to upper limb 126 (41.72%). It is observed that in majority of cases (68.21%) were bitten at farm/field followed by garden (16.55%) and road (8.94%) (Table-4).

As it is mentioned in Table-5 that majority (61.25%) cases where duration of reaching hospital was 1-4 hours, however 29.8% cases reached hospital within 1 hour of bite. Maximum incidence of snake bite was seen in persons who were directly involved in the agricultural work 225(74.50%) than the non-agricultural work 77(25.50%). Out of 302 patients of snake bite 6 (1.98%) patients died during the treatment. (In India, there are 216 species, out of which 52 are poisonous). In present study the fatality rate was 1.98% as majority of snake bites are due to nonpoisonous snakes and even though in case of poisonous snake bite snake may not inject the fatal dose.

Table 1. Age and sex wise distribution of cases

Age group	Male	Female	Total
0-10	00	00	00 (00)
11-20	30	15	45 (14.90)
21-30	60	39	99 (32.78)
31-40	57	23	80 (26.49)
41-50	29	11	40 (13.24)
51-60	14	18	32 (10.59)
61 and above	06	00	06 (1.98)
Total	196 (64.90)	106 (35.09)	302 (100)

(Figures in the parenthesis indicates percentages)

Table 2. Distribution of cases as per time of bites (n = 302)

Time of bite	Male	Female	Total
Morning (5am-11 am)	46	22	68 (22.51)
Noon (11am-4 pm)	23	15	38 (12.58)
Evening (4 pm-7pm)	91	53	144 (47.68)
Night (7 pm– 5 am)	36	16	52 (16.88)
Total	**196 (64.90)**	**106 (35.09)**	**302 (100)**

Chi-square = 34.55 df = 3 p<0.001

Table 3. Distribution of cases as per site of bite (n = 302)

Bite site	Number of cases		Total
	Male	Female	
Upper limb	92	34	126 (41.72)
Lower limb	104	72	176 (58.27)
Total	**196 (64.90)**	**106 (35.09)**	**302 (100)**

Chi-square = 6.23 df = 1 p<0.05

Table 4. Distribution of cases as per place of bite (n = 302)

Place of bite	Number of cases		Total
	Male	Female	
House	07	12	19(6.29)
Garden	38	12	50 (16.55)
Farm/Field	126	80	206 (68.21)
Road	25	02	27 (8.94)
Total	**196**	**106**	**302 (100)**

Chi-square = 15.77 df = 3 p<0.005

Table 5. Distribution of cases as per interval between bite and presentation (n = 302)

Time of interval	No. of cases
0– 1 hour	90 (29.80)
1– 4 hours	185 (61.25)
>4 hours	27 (8.94)
Total	**302 (100)**

(Figures in the parenthesis indicates percentages)

Discussion

In the present study, out of total 302 cases of snake bite, 64.90% were males and 35.09% were females, showing a male predominance. This may be attributed to the fact that the more involvement of males in agricultural work than female. Maximum cases of bite were during day followed by night time when females might be engaged in household work. This finding is consistent with the observations of Banerjee [6] and Sharma et al.[7] The highest incidence of snake bite poisoning was observed in the age group of 21 – 40 years (59.27%). This could be due to that this is most active period of life and people are most actively involved in agricultural and outdoor work. After 50 years of age the incidence declined. Similar observations were reported by Ahuja and Singh[8] Banerjee R.N[6] and Kothari R.P[9] . Present study showed maximum cases of snake bite occurred on lower limbs 176 (58.27%) followed by upper limbs 126 (41.72%). This could be due to fact that rural people do not use protective shoes routinely. Poverty prevents them to purchase proper shoes and most of them use chappals, some even prefer working barefooted. Similar finding were reported by Swami[10] and Banerjee[6] and Kothari et al.[9] In the present study, maximum cases were agricultural workers followed by non-agricultural works. Banerjee[6] also reported similar observations.

Conclusion

Present study concludes that case fatality rate was 1.98%, as majority of snake bites are due to nonpoisonous snakes and even though in case of poisonous snake bite, snake may not inject the fatal dose. Hence there is need about creating awareness in the community about the type of snake, use of personal protective devices while working in the farms, first aid & outcome of the treatment. There were misbelieves of taking patients initially to traditional healers which was the cause of delay in treatment. So it is essential to create awareness and educate the people about the fact that instead of taking patients to the faith healers patients should be immediately brought to the hospital. Mortality can be reduced if Government ensure the uninterrupted supply of free Antisnake venom to all Community Health Centres, Primary Health Centres and even subcentres in hilly and tribal areas where incidence of snakebite is more. Private hospitals/NGOs working in rural/tribal areas can be provided free ASV on basis of Public Private Partnership.

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