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PATTERN OF SNAKE BITE AT CHANDKA MEDICAL COLLEGE HOSPITAL LARKANA

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ABSTRACT

Objective: The objective of the study was to determine clinical presentation and outcome of patients presented with snake bite.
Study design: Prospective follow up study
Place and duration of study: Department of medicine, Medical unit I, Chandka Medical College Teaching Hospital, Larkana from April date to November 2009.
Patients and methods: Patients with snake bite admitted in Medical unit I were included in the study after taking informed consent. The demographic and clinical presentation was recorded in preformed proforma. After initial stabilization patients were followed daily till discharge. Descriptive statistics were computed for demographic and clinical features. Logistic regression was done to identify factors associated with poor outcome.
Results: During eight months study period 135 cases presented in ED of CMCH with history of snake bite. Mean age of participants was 26.3±5.2 years. Gender distribution revealed that 81.5% were males and male to female ratio was 4.6:1. Univariable analysis showed Age OR (95%CI) 1.14 (1-1.3), bleeding 4.91 (1.03-23.38), swelling 8.05 (1.01-64.36), neurologic signs 15.45 (3.84-62.13) and treatment by faith healers 4.19 (1.03-23.38) were the predictors of death. Multivariable analysis showed that Age 1.5 (1.12-2.14), presence of neurologic signs 13.6 (2.06-89.82) and treatment by faith healers 29.1 (2.52-336.4) were independent predictors of death.
Conclusion: It is concluded that age, presence of neurologic signs and treatment by faith healers is independent predictors of death in case of snake bite. This may provide important evidence in order to formulate preventive strategies.

Key words: Snake bite, Chandka Medical college hospital, Clinical features, predictors of death

INTRODUCTION

Snakebite envenoming is a common and life threatening medical emergency encountered in tropical and subtropical countries.[1 2] Snakes are distributed all over the world except in Arctic, New Zealand and Ireland and are more prevalent in temperate and tropical countries[1] Snakebites are estimated to cause 100 000 deaths each year worldwide and disproportionately affect rural populations in resource-poor settings.[3] In Pakistan, it is estimated that around 1.9 per 100,000 populations die annually from snake bite1 Complications set in fast, and the physician may lose valuable time and the patient unless she/he is very careful. It is reported that up to 14,000 people die annually from snake bites especially by Cobra and Viper.[4] In Sind, records of secondary health care centers have shown it to be among the five commonest causes of admission to the hospitals1. The type of snake bite varies from region to region.[5] Of the 3000 species of snakes found worldwide, 15% are considered dangerous and, of the 216 species of snakes found in India, 52 species are reported poisonous.[6] However, most of the bites (and consequent mortality) is

attributable to five species: namely, king cobra, common cobra, Russell's viper, krait and saw-scaled viper.[7]

Snakebite envenoming is a complex medical emergency involving the site of the bite as well as multiple organ systems.[8 9] The dynamic and erratic course of the envenomation syndrome requires close monitoring of the patient and careful clinical decision-making.[10] Most snakebites are nonpoisonous, but clinicians should always be alert to detect the early clinical manifestations of envenoming.

This study was conducted at Chandka Medical College, one of biggest tertiary care teaching institution and referral hospital. The objective of the study was to determine frequency and pattern of snake bite presentation in patients admitted to the emergency department of Chandka Medical college Hospital and to identify predictors of poor outcome with snakebites.

METHODS:

This cross sectional study conducted at Medical Unit-I, Chandka Medical College Hospital, Sindh Pakistan during the year April to November 2009. This hospital is the most important tertiary care center developed by the government of Sindh. This hospital has well equipped emergency department (ED) and anti-venom (ASV) facility was available. In present study, all first time visiting patients to the ED with first discharge diagnosis of snake bite were included. Records of patients visited ED in the past with diagnosis of envenomation from snake and other species were excluded from the study. The diagnosis of snakebite was established on the basis of a history of snake bite. Data was recorded with reference to type of snake identified; age and sex of the patients; site of bite; history of previous bite and Clinical features. Clinical examination was performed in each patient to assess the signs of local, regional and systemic envenoming4 8 and for the presence of complications at the time of admission and during treatment. All patients with snake bite were treated with ASV. Each patient was followed in the ward till discharge. The data was recorded in structured proforma.

The data will be entered and analyzed using SPSS version 15. Continuous variables were expressed as mean and standard deviation (SD) and categorical variables were expressed as frequency percentages. Logistic regression was done to identify independent predictors of death.

RESULTS:

During eight months study period 135 cases presented in ED of CMCH with history of snake bite. Mean age of participants was 26.3±5.2 years. Gender distribution revealed that 81.5% were males and male to female ratio was 4.6:1. Clinical features, type of snake, treatment and outcome summarized in table 1. The vast majority of patients were reported as having been bitten by Vipers followed by Cobra. In 23.7% of cases, the species of snake was unidentified at the time of admission. Of 135 participants 8.9% were died.

Predictors of death were summarized in table 2. Univariable analysis showed Age OR (95%CI) 1.14 (1-1.3), bleeding 4.91 (1.03-23.38), swelling 8.05 (1.01-64.36), neurologic signs 15.45 (3.84-62.13) and treatment by faith healers 4.19 (1.03-23.38) were the predictors of death. Multivariable analysis showed that Age 1.5 (1.12-2.14), presence of neurologic signs 13.6 (2.06-89.82) and treatment by faith healers 29.1 (2.52-336.4) were independent predictors of death.

TABLE 1:
Baseline characteristics of study participants:

Age (mean±SD)	26.3±5.2
Sex	
• Male	110 (81.5%)
• Female	25 (18.5%)
Clinical features	
• Bite marks	82 (60.7%)
• Bleeding	68 (50.4%)
• Swelling	85 (63%)
• Neurologic signs	26 (19.3%)
Type of snake	
• Viper	68 (50.4%)
• Cobra	35 (25.9%)
• Unknown	32 (23.7%)
Treatment	
• Faith healers	70 (51.9%)
• Doctor	135 (100%)
• ASV (mean±SD)	23±3.6
Outcome	
• Survived	123 (91.1%)
• Died	12 (8.9%)

DISCUSSION

Snake bite, a neglected public health problem is an important cause of death in rural patients in developing countries.[11] This study provides evidence that snake bite problem is as common in rural areas of Sind. In present study high number of deaths reported during the study period found in contrast with the previous studies done on snake bite[7 12 13]. The distribution of cases by age, sex, and clinical presentation was also consistent with other reports.[14-16] While snake bite is observed in younger age groups, the high risk group (44%) is aged 24-37 years. This shows the pattern of snake bite in rural areas of Sind is not different from other parts of the developing countries. As farming is the main occupation in these areas where they work barefoot in fields that makes them prone to snake-bites. The dwellings, fields and forests and the resting places of snake include tall grass or brush, rocky areas, fallen logs, bluffs, swamps, marshes, and deep holes in the ground are predispose to frequent contact of humans and snakes. The predominance of male victims suggests a special risk of outdoor activity men do in rural areas. Of 135 cases 81.5% were male. The male to female ratio was 4.6:1. The sex ratio seems almost uniform all over with males being affected thrice as commonly as females.[17] Most patients identified the snake whereas 23.7% were unable to identify the snake species either because of ignorance or poor visibility in darkness. Many studies suggest that significant number of dead species should be brought to the hospital by the victims. They suggest that this will provide sound epidemiological data and also helps in the identification of species that are causing morbidity and mortality in a given area.[18] During this study, 87% of recipients of ASV had

TABLE 2:
Factors associated with mortality due to snake bite

Factors	Survived (n=123)	Died (n=12)	Crude OR (95%CI)	Adjusted OR (95%CI)
Age	26.13±5.3	29.33±3.1	1.14 (1-1.3)	1.5 (1.12-2.14)
Female sex	104 (84.6%)	7 (58.3%)	0.25 (0.07-0.8)	0.042 (0.05-0.37)
Clinical features				
Cuts present	74 (60.2%)	11 (91.7%)	7.28 (0.91-58.2)	1.91 (0.02-63.9)
Bleeding	62 (50.4%)	10 (83.3%)	4.91 (1.03-23.38)	1.71 (0.08-33.11)
Swelling	71 (57.7%)	11 (91.7%)	8.05 (1.01-64.36)	2.6 (0.041-166.0)
Neurological signs	20 (16.3%)	10 (83.3%)	15.45 (3.84-62.13)	13.6 (2.06-89.82)
Treatment				
Faith healer	60 (50.4%)	10 (83.3%)	4.19 (1.03-23.38)	29.1 (2.52-336.4)
Type of snake				
Unknown	31 (25.2%)	16.7%)	1	1
Viper	59 (48%)	8 (66.7)	2.1 (0.42-10.5)	-
Cobra	33 (26.8%)	2 (16.7%)	0.93 (0.12-7.08)	-

received treatment after 24 hours of bite. In this study 53.3% patients visited faith healer before come to ED of hospital. It has been reported that in most developing countries, up to 80% of individuals bitten by snakes first consult traditional practitioners before visiting a medical centre.[2]

In descriptive study was conducted in medical wards of Liaquat University Hospital Hyderabad/Jamshoro, Sind. There were 57 (95%) viper bites (haemotoxic) having haemostatic abnormalities and 3 (5%) elapid (neurotoxic) bites presented with neuroparalytic symptoms. Unlike this study the overall mortality rate reported by study in Jamshoro was 4%.[11]

Patients who arrived late had poor outcome. In Pakistan there is shortage of medical facilities in rural area which may also the cause of delayed consultation so more health centers throughout the country need to be developed for the management of this public health problem.[19]

This study has limitations. The sample size is low that's why the confidence interval of predictors of death are wide suggested high variation and results are not genralizable, however for such studies it is difficult to calculate sample size. The other variable are not included in the analysis like bleeding time (BT), prothrobim time (PT) and activated partial thromboplastin time (APTT) because those who died these investigations were not possible. Those who died majority of them arrived late so resources were used to save the life.

CONCLUSION

It is concluded that mortality from snake bite is a public health issue. Despite availability of treatment people still take the patients to faith healers. This delays the treatment and this act as major risk factor. In this study age, presence of neurologic signs and treatment by faith healers is independent predictors of death in case of snake bite. This may provide important evidence to formulate preventive strategies especially health education.

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AUTHORS' CONTRIBUTION:

Dr. Nanik Ram is overall principle investigator; involving in planning and drafting the paper. Dr. Hakim Ali Abro is subject specialist; Dr. Abdul Sattar Sheikh and Habib Rehman Qadri were involved in designing, data analysis and interpretation of data.