Original Article

Demographic & Clinical characteristics with outcomes of snake bite in a tertiary hospital

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ABSTRACT

Background: *One of the common medical emergencies is Snake-bite. Many patients die every year due to snakebite. However, the demographic feature, clinical manifestations, mortality and morbidity from snake-bite in our country has not been well studied. This study analyses demographic feature, clinical manifestations and outcomes of the snake bite poisoning in patients admitted to a medical college hospital.* ***Aims & Objectives:*** *To determine the demographic features, clinical manifestations and outcomes of the snake bite poisoning.* ***Materials and Methods****: This is an observational study done in the department of Medicine, Khulna Medical College Hospital from 1st July 2017 to 30th June 2018. Patients aged 13 years and above admitted with the suspicion of snake bite during the period were selected.* ***Results:*** *Out of 114 admitted snakebite patient most of the patients 50 (43.85%) are of younger age groups (13-40 years). Most bites occurred in rural area 108 (94.73%) and 74 (64.91%%) occurred between the months of July to September. Most cases 70 (61.40%) are non-venomous snake bites; krait was the main culprit for all venomous 44 (38.59%) cases showing neurotoxic features. Foot was the most common (42.10%) site of bite. ptosis (38.59%) and broken neck sign (17.54%) were the two most common clinical features. All venomous cases received 10-20 vials of anti-venom. 31.81% (14) of venomous patients developed respiratory failure requiring mechanical ventilation; of them 6 (13%) died.* ***Conclusions:*** *Snakebite is one of common emergency that endangers life in the study area. Treatment by Ohzas is very common and this causes Delay in hospitalization resulting in respiratory failure and increases mortality.*

Key Words: *Snake, Bite, Venomous, Poisoning.*

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INTRODUCTION:

Snake bite is one of the medical emergencies causing significant mortality worldwide. It has been considered to be a devastating environmental occupational injury, affecting poor rural communities like farmers,

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plantation workers and fishermen around the world.[1-3]

About 5 million snake bite cases occur globally and causing about 100,000 deaths annually.[4]

Envenoming resulting from snake bites is a particularly important public health problem in rural areas of tropical and subtropical countries in Africa, Asia, Oceania and Latin America.[5]According to a recently published epidemiological survey, the incidence density of snake bite among the rural Bangladeshi population is 623.4/100,000 person years.[6] In Bangladesh mortality rate is not known exactly; the reported mortality varies widely from 0.5% to 22%. [7-9]

In Bangladesh, among the 82 species of snakes, 28 are venomous, 12 species of them are sea snakes.[10] Bites by green pit vipers (Cryptelytrops erythrurus and other species), cobras (Naja species) and kraits (Bungarus) are the most commonly identified ones, whereas Russell's viper (Daboia russelii) appears to be rare and saw-scaled vipers (Echis species) non-existent.[11]

Most of the snakes are non-venomous. only few are venomous. These are Cobra, Krait, Russel's viper, Saw scaled viper, green snakes, sea snakes. Not all but most of the poisonous snake bite produce toxicity; Bites usually occurs when the people are at work like cultivation, gardening, plantation, wood collection, watching the crops even during walking. bites also occur during sleep. During the bite most of the people can't identify the snake. Venomous snake bites usually presented with neurological manifestations but may also produce haematotoxicities, myotoxicities, organ failure and local features. Most patients visited oHzas and comes with inappropriate application of tourniquet. Only supportive treatment including tetanus prophylaxis and assurance is sufficient for non-poisonous bites. The mainstay of management of venomous snake bite is anti-snake venom with few patients requiring ventilation. Early diagnosis and treatment causes reduction of morbidity and case fatality.

AIMS & OBJECTIVES:

To determine the demographic characteristics, clinical feature and outcome of snakebite cases

METHODS AND MATERIALS:

This is an observational study done in the department of Medicine, Khulna Medical College Hospital from 1st July, 2017 to 30th June, 2018. Patients aged 13 years and above admitted with the suspicion of snake bite during the period were identified.

The data were recorded in structured proforma including details of demography, type of snake involved in the bite, clinical feature of the patient, treatment given, total requirement of ASV and any adverse event recorded after ASV and outcome of the patients were collected. The data were analysed statistically.

RESULTS:

In our study we studied 114 patients of which 58 (50.87%) cases were male and 56 (49.12%) cases were female. Male: female is 1: 0.96.

Table 1: Sex distribution

Sex	No	Percentage
Male	58	50.87%
Female	56	49.12%

Table 2: Age distribution

Most cases 50 (43.85%) of snake bite patents are between 20-40 years of age.

Age	No	Percentage
13-20	30	26.13
>20-40	50	43.85
>40-60	31	27.19
> 60	03	02.63

Most cases come from rural area. Among 114 cases 108 (94.73) cases came from rural area and 6 (5.26%) cases from urban.

Table 3: Rural Vs Urban distribution

Residence	No	Percentage
Rural	108	94.73
urban	6	5.26

Seasonal variation is noticed in snake bite case. Most of the snake bite occurred in rainy season. In our study 74 cases (64.91%) occurred between the month of July to September. There was little or no of bite in the month between December to march

Table 4: Seasonal variation

Month	No	Percentage
January	0	0
February	0	0
March	0	0
April	6	5.26
May	7	6.14
June	5	4.38
July	33	28.94
August	19	16.66
September	22	19.29
October	13	11.40
November	7	6.14
December	2	1.75

Most common site of bite was foot 48 (42.14%), followed by leg 36 (31.57%), hand 18 (1.78%)

Table 5: Sites of bite

Site	No	Percentage
Foot	48	42.10
Leg	36	31.57

Hand	18	15.78
Forearm	11	9.64
Thigh	2	1.75
Back	1	0.87

Most of the Patient 62 (54.38%) couldn't identify species of snake. 20 (17.54%) patients identified the snake as krait. All such bites showed clinical manifestations of envenoming.

Table 6: Species of snake

Species	No	Percentage
Krait	20	17.54
Kobra	0	0
Others like Jolpora; Masua etc	2	28.07
Couldn't identify	62	54.3

Most of the snake bite was non venomous type 70 (61.40%);

Table 7: Venomous vs Non venomous

Non venous	70	61.40%
Venomous	44	38.59%

All the venomous bite 44 (38.59%) presented with features of neurotoxicity.

Table 7: Clinical Manifestations

Clinical feature	No	Percentage
Ptosis	44	38.59
Broken neck sign	20	17.54
Pupil		
• Constricted	18	15.78
• Dilated	0	0
• Normal	96	84.21
Limb weakness	26	22.80
Respiratory failure	14	12.28
Cellulitis	4	3.50
AKI	1	0.87

All snake bite patients 114 (100%) received tetanus toxoid and antibiotic. All venomous bite patient 44 (38.59%) received anti venom. No significant side effects developed in any patient.
1 dose (10 vials) was required in 22 (19.29%) patients. 2 doses (10 vials each dose) were required in 22 (19.29%) patients.30 (26.31%) cases received atropine and neostigmine.

14 (12.28%) patients require ICU support with mechanical ventilation.

Table 8: Treatments given

Treatments	No	Percentage
Tetanus toxoid	114	100
Antibiotics	114	100

Anti-venom	44	38.59
Atropine with neostigmine	30	26.31
Mechanical ventilation	14	12.28

Full recovery in 108 (94.73%) cases; death occurs in 6 (5.26%) cases.

Table 9: Outcome

Outcome	**No**	**Percentage**
Full recovery	108	94.73
Death	6	5.26

DISCUSSION:

In our study we found that Males and female suffer almost equally by snake bite (1:0.96). Our findings are similar to a study by R Rahman et al. [12]

In Another study in Bangladesh it is found that Males tended to have higher snake bite injury rates rather than females.[13]

People of younger age group are affected in majority of cases. Most cases 50 (43.85%) are between 20-40 years of age. These findings correspond to several other studies both in Bangladesh and in other countries. [14-16]

Most of the cases came from rural area as snakes are more prevalent in rural areas and thus people come in close contact due to their daily activities. Similar findings in other studies. [13]

Seasonal variation is clearly noticed in snake bite case. Snake bites mainly occurred in rainy season. In our study 74 (64.91%) occurs between July to September. There was no of bite in the month January to march. These findings are similar to a study by several studies. 14,17,18

In most of the cases 62 (54.38%) snakes couldn't be identified. Similar results in a study stated that in many cases, the biting snake cannot be identified, or even misidentified.[19]

In our study most common site of bite was foot 48 () , followed by leg 36 (31.57%) hand 18 () .Similar results are found in other studies.[20-22]

All the 44 (38.59%) venomous bite presented with features of neurotoxicity. Similar to a study by Ahmed SM.[23] Most common clinical feature was ptosis (100%). This finding corresponds to many studies in our region.[17,24]

All patients including both venomous and non-venomous received prophylaxis with antibiotics and tetanus toxoid. Most cases of venomous snake bite can be managed with 10-20 vials of ASV. In our study 30 cases (68.18% of venomous snake bite) received atropine and neostigmine.

We found that 14 (12.28% of total cases & 31.81% of venomous bites) patients require ICU support with mechanical ventilation of whom 6 (5.26% of total cases & 13.63% of venomous cases) died. In a study by

Meenakshi et al it is found that five patients (31.2%) with neurotoxicity were given ventilator support of whom 3 patients developed irreversible respiratory failure and died.[20]

CONCLUSIONS:

Snake bites cases are still a serious health problem and one of the life-threatening emergencies in the study area. Delay in hospitalization is associated with increased mortality. Many patients are not aware of what to do instantly and not getting initial first aid management. This poor awareness of people increases the risk of morbidity and mortality due to snake bites. This study findings would be helpful to manage snake bite related health problems in Bangladesh.

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