FIELD MEDICINE

SNAKE BITE IN BANGLADESH

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ABSTRACT

Background: Snake bite is a real emergency and an important cause of morbidity and mortality. The objective of the study was to observe different aspects of snake bite including proportion of poisonous snake bites, clinical features of poisoning and outcome of treatment with polyvalent antivenom serum.

Patients and Methods: 188 cases of snakebite were prospectively studied from June 2001 to Dec. 2002. Among them 132 were males and 56 were females. Age of the patients ranged from 10-70 yrs. Tourniquet was applied in all the cases of snake bite.

Results: Peak incidence 74(39.36%) was in the age group 10-20 yrs. 108(57.44%) cases were venomous and 80(42.55%) were non-venomous. 158(89.04%) case of snake bite occurred out side the house and the common site of bite was lower extremities in 124 (65.95%) cases. Common feature of poisoning was drooping of the upper eyelid in 108 (100%) cases followed by external ophthalmoplegia in 82(75.92%) cases. Out of 108 venomous snake bite cases 101(93.52%) recovered completely and 7(6.66%) died after admission. 60(55.5%) cases recovered with only 20-30 ml (2-3 vials) of polyvalent antivenom serum.

Conclusion: Snake bite cases were reported mostly in months of June and July. Young people were mostly affected with clinical presentation of drooping of eyelid and external ophthalmoplegia.

Keywords: Venomous snake, polyvalent antivenom, tourniquet, ophthalmoplegia

INTRODUCTION

Though a medical emergency and an important cause of morbidity and mortality, snake bite is neglected as a health problem in our country. Snake bites may be poisonous and non-poisonous. Poisonous snakes are classified into a) elapids (secreting neurotoxic venom) ii) Vipers (vasculotoxic) and iii) Sea snakes (myotoxic) [1]. The Cobra (najanaja), an elapid has been regarded as well known dangerous snake in the Indian Sub-continent for long [2]. Cobra causes considerable morbidity and mortality in South East Asia [3,4]. Clinical features of envenoming by different species of snakes are available from a number of Asian countries [5,6,7].

As snake bite is a neglected health problem, published literature was very few until 1994. Azhar and others reported poisonous snake bite with 2 fatalities among 74 cases in Rajshahi medical college hospital [8]. Subsequently, a number of studies were conducted in Chittagong medical college hospital and Cox's Bazar by Faiz MA and others who identified and described the problem of snake bite [9,10]. Incidence of snake bite in our country increase during floods and fatalities also increase at that time. In the past people used to go to 'Ohzas' for

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traditional treatment but recently the trend has changed and people go to hospitals to get scientific treatment.

The objective of the study was to see different aspects of snake bite including proportion of poisonous snake bites, clinical features of poisoning and outcome of treatment with polyvalent antivenom serum (Hoffkine).

PATIENTS AND METHODS

188 patients following snake bite admitted into the medical units of Khulna medical college hospital from June 2001 to Dec. 2002 were studied prospectively. Patients having definite history of snake bite and having fang mark were included in the series. Identification of the offending snake was not possible in most of the cases. Only 13 cases were identified as Cobra as they raised hood before biting. Venomous and non-venomous snake bite was labeled depending on features they developed.

After admission the patients were followed carefully and features of poisoning were noted including local swelling and fang mark. In all the patients the tourniquet was released slowly taking preparation for emergency management.

Routine blood test, Total and differential count of WBC, ESR, Hb%, Platelet count, bleeding time & clotting time was done in all the cases and was normal. Routine urine test did not reveal haematuria in any case and as there was no bleeding manifestation we did not go for FDPs. Blood urea and creatinine and CPK was normal in all the cases. Blood grouping was done in all the cases and arrangement for blood transfusion was made but none had bleeding manifestation and no transfusion was required.

Anti tetanus prophylaxis was given to all the cases of snake bite by tetanus toxoid and TIG. None of the cases developed tetanus.

Venomous snake bite diagnosed on the basis of clinical manifestation was treated by lyophilized polyvalent anti snake venom serum. In our country polyvalent anti venom from Hoffkine (India) is only available in lyophilized powder form. Each vial contains 10mg of antivenom, which is effective against systemic envenoming by Cobra, Krait, Russell's viper and saw scaled viper only. The recommended dose in Bangladesh is 10 vial irrespective of age and sex of the victim. Each vial is diluted with 10 ml of distilled water. 10 such vial (100ml) is further mixed with 100 ml of dextrose aqua/saline and given IV within 40-60 minutes. (60-70 drops per minute).

But in fact in many of the patients, treatment was started with 2 or 3 vials because sometimes the drug is not available or patients cannot procure it because of financial constraint and many patients were cured by less than 10 vials & some patients required more than 10 vials.

Precautions were taken to combat anaphylactic reaction or allergic manifestations after IV serum, keeping inj. Adrenaline (1:1000 dil.) inj. Hydrocortisone and antihistamine chlorpheniramine maleate at hand. But fortunately none of the patient developed anaphylactic reaction. In some patients respiration was maintained by umbo bag as mechanical ventilator was not available in this hospital.

RESULTS

Among 188 snake bite patients 132 (70.21%) were male and 56(29.78%) were female. Age of the patients ranged from 10-70 years and peak incidence 74 (39.36%) was in 10-20 years age group (tig. 1). 108 (57.45%) were venomous and 80(42.55%) snake bite cases were non-venomous. 158(84.04%) cases of snake bite occurred out side the house (table-1). The places of bite were at home 52(27.65%), in roads and grounds 62(32.98%), in shrubs 41(21.81%), in forest 15(7.98%) and in rural foot walk (Katcha road) 18(9.57%). Agriculture workers 63(33.51%), housewives 41(21.81%) and students 58(30.85%) were the occupational groups commonly affected.

Sites of bite were in lower limb 127(67.55%), upper limb 48(25.53%) and at neck and body 13(6.91%) (table-1) Tourniquet was found in all the cases and traditional treatment was given to most of the patients before admission. Among 108 poisonous cases. Drooping of the upper eyelid 108(100%), external ophthalmoplegia 74(68.5%) and others were the common features of poisoning (table-2).

Among the 108 venomous snake bite cases 101(93.52%) recovered completely after getting AVS and only 7(6.48%) died after admission. 60(55.5%) cases recovered with only 2-3 vials (20-30ml) of polyvalent antivenom serum (AVS) but others required upto 16 vials (160 ml) depending on severity of symptoms and its duration (fig. 2).

DISCUSSION

Morbidity and mortality from poisonous snake bite cannot be neglected. Young people are the victims of snake bite in our study, the peak incidence being 74(39.36%) in 10-20 yrs. age group. This was also found in other studies in Bangladesh and other tropical countries [10,11]. This is an occupational hazard of young and active male in our country specially those who work in Hilly areas and in forest. In our study venomous snake bite is more than the non venomous snake bites which is inconsistent with other studies in Bangladesh [10,12] but is consistent with another study in the same hospital [11]. This may also be due to the fact that mostly the venomous snake bites cases not cured by traditional treatment by 'Ohzas' are admitted in hospitals.

The common site of bite was the lower limb 127 (57.55%). In a study at Rajshahi it was 60% [12] and in a study of 130 cases in Taiwan it was 57% [16]. The peak month of snake bite was June to September which is similar to other studies in Bangladesh and other Asian countries [12,16]. The tourniquet application was not accurate in most of the cases. Tight tourniquet may cause ischemic

Table-1: Location of snake bite (n=188).

Occurrence of snake bite	Outdoor	158	84.04%
	Indoor	30	15.96%
Site of bite	Lower limb	127	67.55%
	Upper limb	48	25.53%
	Neck and body	13	6.91%

Table-2: Clinical features of poisonous cases (n=108).

Signs/symptoms	No. of Patients	%age
Drooping of upper eye lid	108	100
External ophthalmoplegia	74	68.52
Pain & burning at site of bite	72	66.67
Apprehension	65	60.18
Weakness of neck muscle (broken neck)	44	40.74
Drowsiness	45	41.67
Respiratory difficulties	43	39.81
Increased salivation	32	29.63
Pain all over the body	30	27.78
Altered consciousness	30	27.78
Swelling at site of bite	24	22.22
Vomitting	13	12.04
Tingling sensation at limbs	13	12.04
Dysphagia	10	9.26
Coma	08	7.41

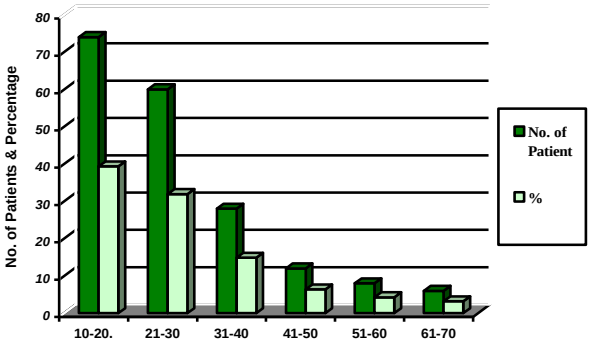

Fig.1: Age distribution of snake bite cases (n=188).

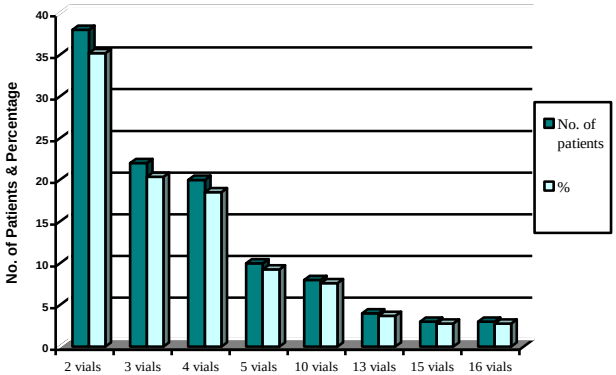

Fig.2: Dose of AVS required in poisonous cases (n=108).

damage to the limb and gangrene. It should be applied loosely just to prevent spread of venom through lymphatics & veins [17].

None of the cases had local tissue necrosis or bleeding from the site of bite, which was common in Chittagong region [9,10]. The main clinical features here were neurotoxicity. Studies in South East part of Bangladesh [8,10,13,14] and in India [15] showed that predominant venomous snake bites were neurotoxic.

In our study among the poisonous snake bite cases only 7(6.48%) died after admission. Among them one was brought dead and other 6 were brought 12-24 hrs after the bite in a critical condition and expired before AVS could produce its effect. Death rate in our study is comparable with other studies in Bangladesh [10,13] and in Taiwan [16]. But in another study in Bangladesh death rate among venomous snake bite was (26%) [12].

In our study the AVS used was less in amount. We got good result with 2-3 vials (20-30ml) of AVS in majority cases, but in other studies they used more AVS [9,10,11]. Different studies show that the conventional dose is not required in all cases and a smaller dose is as effective [18].

In conclusion, treatment of poisonous snake bite with polyvalent antivenom serum is successful and safe. So all graduate doctors and other medical personal should get training to identify poisonous snake bites and start treatment immediately with AVS at upazilla health complexes and district hospitals. AVS should be made available at all levels. Awareness should be created among the rural people through mass media like radio, television & newspaper so that they go to hospitals after snake bite rather than to traditional 'Ohzas' after getting first aid by themselves.

In addition to that awareness should be created among the general people so that snake bite can be avoided by taking following measures: As most of the bites occur in legs and foots we should wear shoes while walking through fields with long grasses, bushes, paddy field and forests. To cut the grasses and bushes short at the sides of the houses. We should carry lights while walking in the dark at night. One should not walk over heaps of stones or wood pieces. Unnecessary heaps of stones or wood from houses or near the houses should be removed, so that snake cannot get shelter. If we come across a snake we should not disturb it rather allow it to pass by. To close any holes in the door, windows or at the floor of the house so that snake cannot enter inside. Avoid introducing hands inside holes of trees, soil or into the bushes. Should not swim in shallow water reservoir or mouth of rivers. To avoid keeping poultry, pigeon inside the houses because they can be the targets of snakes. One should not play with a snake even with an apparently dead snake.

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