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A STUDY ON CLINICAL PROFILE AND OUTCOME OF SNAKE ENVENOMATION IN CHILDREN AT TERTIARY CARE HOSPITAL JHALAWAR, RAJASTHAN

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Abstract

Background: Snake bite is generally considered to be a rural problem and has been linked with environmental and occupational condition is a neglected public health problem.
Method: This study was conducted in children admitted with snake bite in Pediatric Intensive Care Unit in the year 2019. Their demographic details, site of bite, arrival time, 20Minutes Whole Blood Clotting time, clinical signs and symptoms, complications and outcome were measured.
Results: The male: female ratio was 1.33:1. Peak age group affected was 6 to 12 years old children. Lower limbs were commonly bitten. 88.1% of children arrived in the hospital between 0 and 6 hours after the bite. Pain and swelling at the site of bite were the most common symptom of envenomation. There were only two deaths during the study period. Conclusion: Snake bite is a life threatening emergency. Identification, timely diagnosis and early administration of anti-snake venom will certainly aid to curb mortality in snake bite.

Introduction

In any language of the world, snake produce's unimaginable fear and anxiety. Right from the cases where earliest man lived, snakes would have caused first kind of poisoning. The death caused then, might have been first alarm of sensing death at vision of a snake[1]. Annual mortality from snakebites continues to be as high as 30 to 40 thousand in the world. Snake bite, is almost always an accident.

Its incidence is grossly underestimated in India because of lack of data. Since the disease is of tropical nature, there has been paucity of literature and research. In the year 2009, WHO finally included snake bite in the list of neglected diseases[2]. Snakes are legless cold blooded reptiles. Of the 2500 – 3000 species, about 500 belong to the four families of venomous snakes and only about 200 species are poisonous. Nearly 3500 species of snakes exist in the world. India has about 216 species of snakes of which about 52 are venomous and of these only 4 species of snakes are commonly encountered as the cause of snakebite poisoning. These are Russell's viper, Echis Carinatus (Viperidae), Cobras (Elapidae) and pit viper (Crotalidae) [3]. Death figures up to 5.4 per 100,000 resident Indian rural populations definitely speak the magnitude of the problem[4]. This retrospective, the descriptive study aims to ascertain ages, mode of presentation, complications, outcome inpatient of snake bite in pediatric age group.

The prevention of mortality after snake envenomation largely depends on the availability of ASV. WHO has been giving guidelines for the member countries to improve management and avoid deaths due to snake bite. In spite of wide spread availability of Polyvalent Anti Snake Venom, the deaths due to envenomation could not be completely avoided.

Material and methods:

This study was conducted in children admitted to the Pediatric Intensive Care Unit (PICU) of tertiary care center, Jhalawar. The study period was during January 2019 – December 2019. 42 patients of both sexes aged 0-16 years having snake envenomation were included in the study.

The Inclusion criteria were children with definitive history of snake bite and children with doubtful history of snake bite but with signs of envenomation. Exclusion criteria were children with non-snake bites and children with doubtful history of snake bite but without signs of envenomation. A careful history was obtained. Complete general and systemic examination was done. The site of the snakebite was examined for any local tissue reaction, such as swelling, erythema, and necrosis. An attempt was made to correlate the pattern of fang marks with the type of alleged snake. Detailed examination of central nervous system, cardiovascular system, and respiratory rate and per abdomen was carried out in all the cases.

Routine and specific investigations were done. These include hemoglobin estimation, total leucocyte count, differential count, platelet count, PS (Peripheral smear)-

for signs of hemolysis, KFT (urea, serum creatinine), Urine examination (protein, blood, hemoglobin, myoglobin), BT/CT, 20 minute whole blood clotting time. Specific Investigation includes ABG/ Serum electrolyte, Prothrombin time (PT), Activated prothrombin time (APTT), ECG.

Initial dosage was 5 vials for mild, 10 vials for moderate and 15 vials for severe envenomation was administered in intravenous infusion of antisnake venom (ASV) after test dose and later on followed as per WHO protocol. Neostigmine along with atropine was administered to all patients with neuroparalysis till reversal of neurotoxic manifestations. All patients were studied for complications during hospital study. Blood transfusion, ventilator support was carried out as and when indicated. Patients developing severe cellulites were received appropriate antibiotics and anti-inflammatory agents and referred to surgeons for necessary treatment. Conditions at the time of discharge were noted. Study outcome was noted as discharge or death.

Results:

During the study period number of admissions in the PICU was 1712. There were 42 children with snake bite admitted during the study period. There was a significant male preponderance with a Male: Female ratio of 1.33:1. The peak age group to be affected with snake envenomation was 6 to 12 years old children. Lower limbs (78.6%) were the common site of snake bite in the study. About 88.1% of children with envenomation arrived at the hospital 0 to 6 hours after the snake bite. Pain and swelling at the site of bite was the commonest symptom of snake bite which was present in 85.7% of cases. Vomiting, abdominal pain, ptosis, and respiratory distress were the other common symptoms. Ptosis was seen in 12 children with neurotoxic signs.

Table 1: Socio-demographic variable

Variable		No of patients	Percentage
Age (Years)	0-6	6	14.29
	6-12	32	76.1
	12-16	4	9.5
Sex	Male	24	57.14
	Female	18	42.86

Commonest age group affected was 6-12 years (76.1%) and male outnumbers female (Ratio 1.33:1).

Table 2: Site of bite

Head	0	0
Upper limb	6	14.3%
Trunk	3	7.1%
Lower limb	33	78.6%

Lower limbs were commonly bitten (78.6%).

Table 3: Interval between bite and hospital

Interval	No of patients	Percentage
0-6 hrs	37	88.10
6-24 hrs	3	7.14
25 hrs or more	2	4.76
Total	42	100.00

88.10% patients were come in hospital within 6 hours of bite.

Table 4: Clinical profile of snake bite

Clinical profile	No of patients	Percentage
Local pain and swelling	36	85.71
Ptosis	12	14.28
Vomiting	18	42.85
Respiratory difficulty	3	7.14
Altered sensorium	5	11.90
Abdominal pain	15	35.7%

85.71% patients were presented with local pain and swelling followed by 42.85% patients were presented with vomiting.

Table 5: Complication of snake bite

Complication	No of patients	Percentage
Cellulitis	18	42.86
DIC	3	7.14
Neuroparalysis	12	28.57
ARF	1	2.38
Shock	2	4.76

42.86% patients were presented with cellulitis followed by 28.57% patients were presented with neuroparalysis.

Table 6: Outcome of snake bite

Outcome	No of patients	Percentage
Survival	40	95.24
Death	2	4.76
Total	42	100.00

40(95.24%) patients survived and 2(4.76%) patients died.

Discussion:

The highest incidence at 6-12 years could be due to children involved in labor and farm work. The higher incidence in boys (57.14%) as compare to girls (42.86%) could be due to boys more involved in outdoor activities and risky behavior. A similar trend was also observed in a study by Banerjee et al, Lingayat AM et al and various other studies[4-7].

About 78.6% of snake bites were in the lower limbs. In a study by Varhala AM et al[8] the incidence of lower limb snake bites was 53.5%.

Majority of cases were admitted within first 6 hours and this helps in assessment of severity of envenomation and administration of antisnake venom. This early referral

could be due to significant awareness of snake bite and its treatment in rural areas[9].The variation in the snake bike may be due to geographical distribution in various parts of world[10]. The most common complication was cellulitis followed by neuroparalysis and DIC. Many other studies have similar findings[11,12] due to vasculotoxic or neuroparalytic cases.

In present study, majority of cases survived and 2 patients died of respiratory failure. Many studies observed the same findings[13].

Conclusion:

The key to minimizing mortality and severe morbidity is aggressive management of the ABC`s of resuscitation, and timely and judicious administration of adequate dose of anti-venom. The important observation in the present study is the time taken for a snake bite victim to reach the health care facility. Thus there is a need for a more rapid transport and administration of ASV .The most common symptom detected was local pain and swelling followed by vomiting, abdominal pain, ptosis and altered sensorium and respiratory difficulty.

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