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CLINICO-EPIDEMIOLOGICAL PROFILE OF CHILDREN WITH SNAKE BITE ADMITTED IN TERTIARY CARE HOSPITAL: A PROSPECTIVE OBSERVATIONAL STUDY

Paediatrics

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ABSTRACT

Background: Snake produce's unimaginable fear and anxiety in people and is a common cause of mortality. Majority of studies done in India have been done on adult snake bite victims. Studies done only on paediatric patients are very few.

Material and method: Prospective observational study conducted at tertiary care hospital from January 2016 to December 2016 in both sexes aged between 0-16 years.

Results: A total 24 patients were included in study .Out of 24 patient, 20 (86%) were from rural area and 14 (57%) were living in kaccha house. Snake bites were more common in children where surrounding of their houses has field and bushes. Krait was most common 10 (43%) followed by viper 9 (36%) and cobra 2 (8%). Most bites occur during evening and night hours 14 (57%). About 17 (72 %) of parents visited some religious place before reaching to hospital and was the main reason for delay in treatment. Most common presenting complaint was vomiting 14 (57%).

Conclusion: Children aged more than 5 years are more prone to snake bites. Outcome can be fatal in patients presenting late. Early diagnosis, appropriate treatment and close monitoring of children for development of complications and its prompt management can be life saving.

KEYWORDS

Snake bite, Children

INTRODUCTION

Snake produce's unimaginable fear and anxiety in people and is a common cause of mortality. Mostly Snake bite is almost always an accident. Of the 2500–3000 species, about 500 belongs to the four families of venomous snakes and only about 200 species are poisonous. India has about 216 varieties of snakes of which about 52 are venomous and of these only 4 varieties 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).[1]

The global disparity in the epidemiological data reflects variations in health reporting accuracy as well as the diversity of economic and ecological conditions.[2] The age and sex incidence of snake bite victims throws light on the vulnerable section of the population. While snake bite is observed in all age groups, the majority (90%) are in males aged 11-50 years.[3] In most developing countries, up to 80% of individuals bitten by snakes first consult traditional practitioners before visiting a medical Centre.[4,5]

Majority of studies in India have been done on adult snake bite victims. Studies done only on paediatric patient are very few. Bite circumstances, the time taken to admit and outcome of paediatric snake bite victims can differ significantly from adult snake bite victims. The mortality rate is higher in children owing to larger amount of toxin per kg body weight absorbed.[6]

Therefore, this study was carried out in the teaching hospital of tertiary care centre on Paediatric snake bite patients.

METHODS

The study was conducted during a period of one year (January 2016 – December 2016) in department of Paediatrics, Jhalawar medical college, Jhalawar, Rajasthan, India.

Inclusion criteria

Patients of both sexes aged 0-16 years having history of snake bite

Exclusion criteria

Bites due to other poisonous creatures and doubtful cases of snake bite Complete general and systemic examination was done at the time of admission. The site of the snakebite was examined for any local tissue reaction, such as swelling, erythema, bleeding and necrosis.

A detailed systemic examination 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 haemolysis, KFT (serum urea, serum creatinin), Urine examination, Bleeding time/Clotting time, 20 minute whole blood clotting time. Specific Investigation includes Serum electrolyte, Prothrombin time (PT), Activated prothrombin time (APTT) and ECG.

Initial dosage was 5 vials for mild, 10 vials for moderate and 15 vials for severe Envenomation was administered in intravenous infusion of anti snake venom (ASV) after test dose and latter on followed as per WHO protocol.[7] Neostigmine along with atropine was administered to all patients with suspected neuroparalysis till reversal of Neurotoxic manifestations. Patients were studied for complications during hospital stay. Blood transfusion and ventilator support were given as and when indicated. Conditions at the time of discharge were noted. Study outcome was noted as discharge or death.

RESULTS

A total 24 patients were included in study. Out of 24 patient, female child was more as compare to male with ratio of 1:1.4 (M: F) and most cases 16 (66%) were above 5 years of age.

Out of 24 patient, 20 (86%) were from rural area and 14 (57%) were living in kaccha house. Snake bites were more common in children where surrounding of their houses has field and bushes as compare to residential colony (72% v/s 28%).

Among snake species krait was most common 10 (43%) followed by viper 9 (36%) and cobra 2 (8%). Species could not be identified in 3 cases.

Most bites occurs during evening and night hours 14 (57%) and most common site of bite is upper limb 14 (57%).

Out of 24 patients, 22 (96%) has access to health care facility within 5 km area but only 17 (72%) were reached to hospital within 6 hours of bite. About 17 (72 %) of parents visited some religious place before reaching to hospital and was the main reason for delay in treatment. **(Table 1)**

Most common presenting complain was vomiting 14 (57%) followed by pain abdomen 10 (43%) and oedema at site of bite in 10 (43%).

Out of 24 patients, 10 patient had complications following snake bite and among them encephalopathy and renal failure was more common.

Among admitted patient, 7 patients required mechanical ventilation, 21 (88%) were discharged and 3 patient expired due to complication (renal failure in 1 patient, encephalopathy in 2 patient). **(Table 2)**

DISCUSSION

This study was carried out at tertiary care hospital in Rajasthan, India

and all patients were paediatric patients.

In our study most of children were female and were above 5 year of age. Similaraly in other study vulnerable age group was above 5 year because of their tendency to play all over and in rural area they also given responsibility of carrying out outdoor activities like grass cutting, cattle grazing and firewood collection etc. thus making them an exposed age group for snake bite.[8] As seen in our study female victim were more common than male. Although in study by Hansdak et al and Jorge et al male were more common than female.[3,9] Saborio et al found no significant gender differences in their study.[10]

Most of children were from rural areas and living in kaccha house with bushes and fields surrounding which make then prone for incident. Most common site of bite is upper limb. Children are very curious and have the habit to explore various holes and crevices which may be the hiding places of snakes and most of bites occur in evening and night time. Similar finding also observed in studies done by Nayak et al and Reid.[6,11]

Most of patients reached to health facility within 6 hr of bite that indicate awareness about accessing heath facility but still 72% cases visited some religious /quack before going to hospital. That was the main reason of delay in treatment. Similar results also found in the study done by Bhawaskar and Bhawaskar.[12] This clearly shows improper health-seeking behaviour and a high level of faith in the traditional healers. This may be attributed to their low educational status, financial problems, and lack of awareness of the efficacy of medical treatment with antivenom.

In our study other 10 patients had some sort of complication after bite among them renal failure and encephalopathy was more common. Seven patient required mechanical ventilation and complication was the cause of death in 3 patients. Kulakarni and Anees and Rani et al also found similar mortality profile in their studies .[13,14]

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TABLE 1: Socio-Demographic profile of patients

Parameter	n(%)
Sex	
Male	14 (43)
Female	10 (57)
Age	
0-5 yr	8 (34)
>5 yr	16 (66)
Habitate	
Rural	20 (86)
urban	4 (14)
Housing	
Pukka	10 (43)
Kaccha	14 (57)
Surrounding	
Residential	7 (28)
Bushes	10 (43)
Field	7 (28)
Distance to health facility	
<3 km	12 (50)
3-5 km	10 (44)
>5 km	2 (6)
Time to reach hospital	
0-2	3 (14)
2-4	7 (28)
4-6	7 (28)
>6 hr	7 (28)
Type of species	
Krait	10 (43)
Viper	9 (36)
Cobra	2 (8)
Unkwon	3(14)
Timing of bite	
Evening	4(14)
Day	10 (43)
Night	10 (43)
Site of bite	
Upper limb	13 (57)
Lower limb	10 (40)
others	1 (3)
Time of bite	
Sleeping	10 (43)
Playing outdoor	10 (43)
Playing indoor	4 (14)
Religious place/quack visit	
Yes	17 (72)
no	7 (28)

Table 2: Clinical profile of patients

Parameters	n(%)
Presenting complains	
Vomiting	14 (57%)
Pain abdomen	10 (43)
Shortness of breath	7 (28)
Edema at site of bite	10 (43)
Bleeding at site of bite	3(14)
Altered level of consciousness	3 (14)
Antivenom dose (vial)	
5	3 (14)
5-10	10 (43)
10-20	4(14)
20-30	7 (28)
Complications	
Renal failure	3 (14)
Myocarditis	1 (3)
Pulmonary edema	1 (3)
Systemic bleeding	2 (6)
Encephalopathy	3(14)
Outcome	
Discharged	21(87.5)
Expired	3(12.5)

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