



ORIGINAL RESEARCH PAPER

Paediatrics

SNAKE BITE IN CHILDREN : A OBSERVATIONAL STUDY IN A TERTIARY CARE CENTER IN JAMMU.

KEY WORDS: Paediatrics, Snake bite, Envenomation.

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ABSTRACT

OBJECTIVE – To study the clinical profile, complications and outcome of pediatric patients with snake bite.
METHODS – Retrospective, observational cross sectional study conducted over a period of 1 year at SMGS Hospital an associated hospital of GMC Jammu , sole pediatric hospital of Jammu province. Total of 262 children below the age of 18 years who reported to hospital with history of snake bite were included in the study.
RESULTS – We observed that male patients in the age group 7-18 years were most affected. Peak incidence was in months of June to September. Neurotoxic envenomation was most common thus causing ptosis and respiratory difficulty. Overall outcome was too good with the survival percentage of 97.7%.
CONCLUSION – Snake bite is a common public health hazard with a very good outcome with timely intervention and early AVS administration in correct doses.

INTRODUCTION

Snake bite is a common medical emergency and an underestimated public health problem in tropical and sub-tropical countries. WHO has included snake bite in list of neglected tropical condition in 2009.[1] The highest number of snake bites are recorded from Asia, South-east Asia and sub-Saharan Africa[2]. South Asia is the world's most heavily affected region.[3] . It has been estimated that 5 million snake bite cases occur worldwide every year, causing about 100,000 deaths. On an average, nearly 2,00,000 persons fall prey to snake-bite per year in India and 35,000-50,000 of them die every year.[4] There are 3150 species of snakes in the world and around 600 species are venomous.[5] India is inhabited by 216 species of snakes, of which 52 are known to be venomous.[6] The most poisonous, medically important species in India which are widely distributed throughout the country include Cobra, Common Krait, Russells viper and Saw scaled viper. Blisters and local necrosis are common especially in Cobra bites [7]. Russell's viper bites cause many problems such as bleeding and neurological complications [8]. Acute renal failure is a major complication of viper bites [9]. It is believed that Russell's viper bites rarely cause myotoxicity [10]. Saw-scaled viper bites can give rise to local swelling and coagulopathy [11] Common krait bites can give rise to burning body pains, speech and swallowing difficulties and respiratory failure [12].

Thus bites by venomous snakes can cause wide spectrum of acute medical emergencies involving severe paralysis causing breathing difficulty, bleeding disorders that can lead to fatal haemorrhages, irreversible kidney failure and severe local tissue destruction that can lead to permanent disability and limb amputation. Children may suffer more severe effects and can experience the effects quickly than adults due to their smaller BSA. Most deaths and serious consequences from snake bite are entirely preventable by making safe and effective antivenom available and accessible. As Jammu and Kashmir is hilly region and there are very few studies on pediatric victims of snake bite. Therefore this study was conducted in tertiary care hospital of Jammu region.

AIMS & OBJECTIVES

To study the clinical profile, complications and outcome of pediatric patients with snake bite.

METHODOLOGY

This was an observational cross sectional study conducted at SMGS Hospital, a tertiary care academic institute in the Jammu province of J&K state, for a period of 1 year from January to December 2018. All patients below 18 years of age with or without history of snake bite and signs of envenomation were included in the study. Diagnosis of species of snake is important for

optimal management, however in our setup this isn't possible so syndromic approach was used in treatment of snake bite victims.

Detailed history regarding bite, chronology of symptoms, any pre-treatment received was taken. Physical examination was done on day of admission and daily during hospital stay till discharge. AVS was given as per the standard treatment guidelines for management of snake bite by ministry of health and family welfare Govt. of India.

Data on the demographic profile, clinical features, type of envenomation, complications, treatment details and outcome was recorded.

STATISTICS

Data were analysed using SPSS version 10. Data was presented as number of participants and percentage. For all statistical evaluations , a probability of value <0.05 was considered as significant.

RESULTS

Total number of patients included in our study were 262. In our study males (60.3%) outnumbered females (39.6%) Table 1. The commonest affected age group was 7-17 years(98.4%) Table 2. The peak time of the year was between June to September (97.7%) table 3. Species identification was not possible in our study and it was done only on basis of symptomatology. Among symptoms ptosis (54.9%) was most common followed by local pain and swelling (39.3%), respiratory difficulties (36.6%) Table 4. Neurotoxic envenomation (54.9%) was more common than vasculotoxic (39.3%) and hemotoxic (5.72%) envenomations Table 5. Among complications Table 6, respiratory failure requiring mechanical ventilation (55.7%) was most common followed by shock (51.9%), cellulites (39.3%), acute renal failure (4.5%) and DIC (0.76%). History of any unauthorized pre-treatment, tourniquet application was too high, observed in (86.2%) Table 7. Survival percentage was (97.7%) and mortality was too low (2.2%) Table 8.

Table 1 Sex distribution

Sex	No. of patients	Percentage
Male	158	60.3%
Female	104	39.6%

Table 2 Age distribution

Age group	No. of patients	Percentage
0-3 Years	nil	0
3-6 Years	04	1.5%
7-17 Years	258	98.4%

Table 3 Seasonal distribution

Month	No. of patients	Percentage
January-may	02	0.7%
June-September	256	97.7%
October -December	04	1.5%

Table 4 Clinical presentation

Clinical presentation	No. of patients	Percentage
Local pain & swelling	103	39.3%
Ptosis	144	54.9%
Vomiting & pain abdomen	18	6.8%
Altered sensorium	8	3%
Respiratory difficulty	96	36.6%

Table 5 Type of envenomation

Envenomation	No. of patients	Percentage
Vasculotoxic	103	39.3%
Neurotoxic	144	54.9%
Hemotoxic	15	5.72%

Table 6 Complications

Complication	No. of patients	Percentage
Cellulites	103	39.3%
Respiratory failure	146	55.7%
Acute renal failure	12	4.5%
DIC	2	0.76%
Shock	136	51.9%

Table 7 Pre-treatment /tourniquet application

Pre-treatment	No. of patients	Percentage
Yes	226	86.2%
No	36	13.7%

Table 8 Outcome

Outcome	No. of patients	Percentage
Survival	256	97.7%
Death	6	2.2%

Discussion

We observed that males were more affected and the commonest age group was 7-17 years, the reason could be that males are more involved in outdoor activities. Similar observations were reported by Kshirsagar VY et al in a study conducted in children below 15 years from rural areas of Maharashtra out of the 162 patients, 60.49% were males and 89% were above the age of five years. In a study conducted by Karunanayake et al in Sri Lanka highest numbers of bites (48%) were in the range of ages 6-12 years.[13] Peak time of the year was June-September, which is rainy season of the year. In rainy season the habitat of snakes get flooded with water and snakes move out. Neurotoxic envenomation was more common in our study, it varies due to geographical distribution of different species of snakes in different regions of the world. Study by Gautam et al in Himachal showed more neuroparalytic cases (53.3%) than hemotoxic cases (35%)[14]. Chauhan and Thakur found difference in clinical presentation with neuroparalysis common in north india and more of hemotoxicity in southern regions[15]. Most common clinical presentation was ptosis and majority of patients further developed respiratory insufficiency and needed mechanical ventilation, the mean duration of ventilator support was 5 days. Only one patient remained on mechanical ventilator for 2 months but she was discharged latter on. Shock was the second most common complication and was managed with crystalloids and ionotropes. After shock, cellulitis was common complication, and majority of patients presented with local pain and swelling. Local pain was due to tourniquet application, which was a very common practice in our society. Cellulitis was managed with antibiotics. DIC was developed in 2 patients, one patient expired and other one was managed successfully. 12 patients developed ARF which was managed conservatively by forced diuresis and use of diuretics. Three patients with ARF needed haemodialysis. In our study a significant finding was lack of knowledge among the general public regarding the symptomatology and treatment of snake bite. People approach to medical facility only after the unauthorized

pre-treatment, thus wasting precious time. In our study we were not able to document the first contact with primary health care system and whether ASV was given or not, if given was the dose correct or not. One more important thing is the mean time interval between bite to ASV administration is missing in our study as it has a great impact on final outcome of the patient. Long term morbidities due to prolonged mechanical ventilation or dialysis associated complications were not taken into consideration in this study.

CONCLUSION

Timely ASV administration can reduce morbidity and mortality in snake bite victims. There is dire need of public awareness regarding this problem, what to do and what not to do. Also the basic health care system need to be strengthened regarding timely ASV administration in correct doses, to recognise the complications before hand and timely intervention to have better outcome.

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