



EPIDEMIOLOGY OF COBRA BITE IN KUMAON REGION OF UTTARAKHAND

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ABSTRACT

Envenomation by poisonous snakes is considered as an occupational hazard. Cobra bite is commonly encountered in the Kumaon region of Uttarakhand. The retrospective research was conducted in the Department of Medicine, Government Medical College, Haldwani, to study the epidemiology, manifestations and treatment of cobra snakebite cases admitted to Sushila Tiwari Hospital during June 2013 to November 2016. 18 cases of cobra bite were reported during the study period. The victims of cobra bite predominantly were males. Mean age of victims was 38.38 years. Maximum cases occurred during the pre-monsoon and monsoon months, during daytime and involved the lower limbs. Ptosis was the chief neurotoxic feature followed by dysarthria. Polyvalent Anti Snake Venom (ASV) vials were used as specific treatment. No mortality was reported during the study period.

KEYWORDS :

INTRODUCTION

Indian population of snakes is comprised of about 216 species, out of which 52 are poisonous¹. Poisonous snake bite are serious health challenge in tropical regions due to their incidence, morbidity and mortality³. The annual death rate due to snake bite in India is estimated to be 4.1 per lakh population. India has a highest number of death due to snake bites in the world with 35,000 to 50,000 people dying of it each year⁴. Envenomation by poisonous snakes is an occupational hazards for the farmers and farm labourers, plantation workers, herders and hunters in tropical and sub-tropical countries⁵⁻¹⁴. The actual incidence of snake bites may be much higher as majority of cases occurring in rural population go unreported. 4 species popularly known to be dangerously poisonous to man are the spectacled cobra (Naja naja), Common krait (Bungarus caeruleus), saw scaled viper (Echis carinatus) and Russel viper. The concept of "big four" restrict the sound epidemiological work and development of effective antsnake venom². The principal effect of envenomation are on the nervous system, kidneys, heart, blood coagulability, vascular endothelium and locally at site of bite¹⁶. Envenomation due to cobra and krait bite causes paralysis of ocular bulbar and lid muscles, whereas viper bite mainly causes bleeding from mucocutaneous site, hemolysis, acute renal failure, and occasionally shock. This hospital based retrospective research is aimed to study the clinicoepidemiological features of cobra bite envenomation.

Material and Methods

The retrospective research was conducted in the department of General Medicine, GMC, Haldwani during June 2013 to November 2016. GMC, Haldwani is a tertiary care centre located at Kumaon region of Uttarakhand and the chief referral centre for the cases of snake bite in the region. All the patient admitted in the hospital with history of snake bite were followed up from the time of admission through out their stay in hospital. Snakes were identified based on the description given by patients / relatives and by correlating the clinical manifestation. Moreover, some of the relatives brought the dead snake with them. All the cases of cobra bite (n=18) were included in this study. Case details including age, sex, occupation of victims, the site of bite, the time of bite, the delay in admission to hospital, clinical manifestations, specific treatment, complication and outcome were obtained from hospital records.

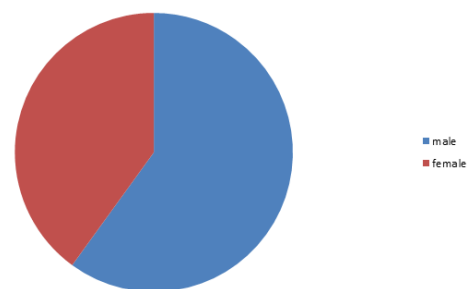
Results

During the study period 18 cases of confirmed cobra bite were admitted in hospital. Maximum number of victims were males. Male to Female ratio 11:7. The victims were aged between 15 and 80. Most

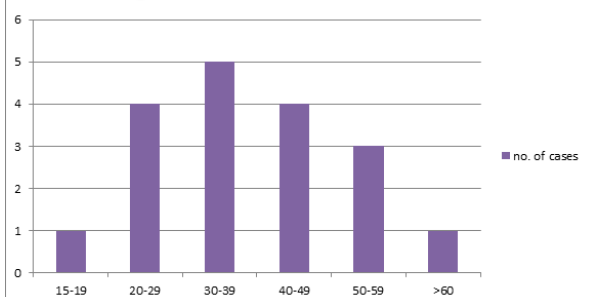
of the in our study were involved in the farming related activities. Definitive fang marks were observed in 9 patients. Detailed victim profile of cobra bite is presented in table 1. Half of cobra bite cases were reported during July and August. Monthly distribution of cases is shown in figure 3.

Most of the patients were brought to the hospital within the first 12 hours of cobra bite (n=14). Approx 70% received first aid measures prior to hospitalization. Local and /or systemic signs of envenomation were evident in 90% victims. Local pain, swelling, vomiting, difficulty in breathing, dysarthria, confusion and weakness were presenting complaint at time of admission. Systemic manifestations observed in cases of cobra bite included blurring of vision, ptosis, ophthalmoplegia, dysarthria, muscular weakness and respiratory embarrassment. Ptosis was chief neurotoxic feature followed by dysarthria. As a specific treatment a number of polyvalent anti snake venom vials were used during treatment. The number of ASV vials administered to each patient of cobra bites ranged from 0-18 vials. No fatalities were reported from cobra bite during study period.

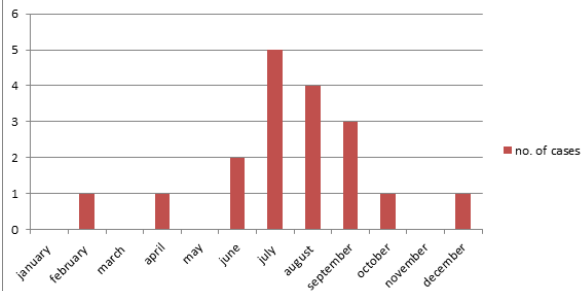
Sex distribution of Cobra bite cases



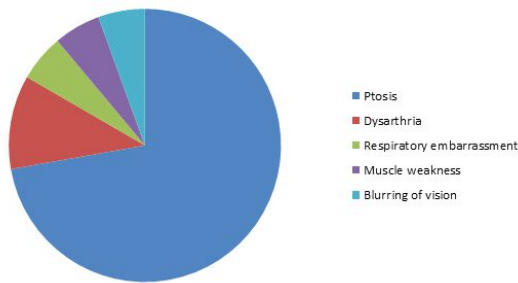
Age distribution of Cobra bite cases



Monthly distribution of Cobra bite cases



Systemic manifestation in Cobra bite



	No. of cases
Gender distribution	11
• Male	7
• female	7
Occupation	11
• Farmer	7
• others	7
Diurnal variation	6
• day	12
• night	6
Place	11
• outdoor	7
• indoor	7
Site of bite	5
• upper limb	11
• lower limb	2
• trunk	2
Fang mark	13
• appreciable	5
• not appreciable	8

	No. of cases
Hospital admission	2
• Within 1 hour	7
• Within 1-6 hour	5
• Within 7-12 hour	4
• > 1 day	2
First aid prior to hospitalization	4
• Tourniquet	12
• Tourniquet and incision	2
• No first aid	2
Clinical manifestation	2
• Local only	2
• Neurotoxic	12
• Both local and neurotoxic	2
Final outcome	18
• Recovered	0
• Expired	18

Discussion

Age group of 20-59 years was found as the peak incidence of victims in our study . A male preponderance among snake bite victims the ratio of male to female was found to be 2:1 is frequently

observed¹⁷.In our study this ratio was 1.57:1. In India , male preponderance was seen in davangere , jammu , Haryana and female preponderance was noted in himachal Pradesh and Maharashtra. Most of the victims are involved in farming related activities . Farming community is increasingly prone for accidental contact with the snakes while working in the fields. The maximum victims of snake bite were reported in our study were during night time as seen in earlier studies . A study conducted in Davangere¹⁸ and maharashtra¹⁹ reported high incidence during day time . lower limbs are involved in maximum number of cases. Bites on the lower limb occur usually due to accidental stamping of snake while working , while bites on the upper limb occur because of accidental contacts with snake while trying to hold grass while harvesting . Victims bitten on the trunk were sleeping at time of incident .

Fangs of cobra are fixed and immobile. Definitive fang marks were observed in 13 out of 18 cases of cobra bite and double punctured marks were present in majority of cases. Remaining 5 patients were having a large incision due to which bite mark could not be seen but signs of envenomation were present. July and august witnessed half of the cobra bite cases . During this period snake usually come out of their burrow due to water logging thereby increased risk of accidental contact with human.

Most of the patients were brought to the hospital within first 12 hours of cobra bite and 16 out of 18 patient had received first aid measures prior to hospitalization . Most of the patient showed local and / or systemic signs of envenomation. Ptosis remained chief neurotoxic feature followed by dysarthria^{20,21}. Polyvalent antsnake venom vials were used during specific treatment of cobra bites . No fatalities were reported from cobra bite during study period

Conclusion

- Peak age group involved was between 20-60 years. Male to female ratio was found to be 1.57: 1
- Half of cases occurred during july and august month.
- Maximum snake bites occurred in outdoor settings to farming related occupations inferring this to be an occupational hazard.
- Maximum incidence of cobra bite during night time corresponds to the nocturnal activity of creature.
- Envenomation was observed even when fang marks were not appreciable suggesting importance of keeping victim under observation.
- Ptosis was observed as a mazor neurotoxic feature in envenomed victims.
- Prompt hospitalization, specific treatment and prior first aid measures may be responsible for preventing systemic envenomation and reducing mortality.

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