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Study of Seasonal Variation in Snake Bite Patients Admitted To a Mangalore Based Tertiary Care Hospital

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Abstract:
Objective- *The study was conducted to assess a seasonal pattern of patients attending the emergency services following history of a snake bite. Materials and Methods: It was aprospective study of 60 snake bite patients who presented to the Emergency services of a tertiary care hospital in Mangalore. The study was carried out over a period of two years. Data was collected by recording the date, time, and the history regarding the circumstances that led to the bite. A clinical examination of the site of bite and a systemic examination was carried out. The information was captured to a preformatted data sheet. Data was analysed using mean, frequency and percentage. Results: It was observed that 53.8% of the affected patients were involved in agricultural activity.The bite was observed in the left lower limb in 34.8% of the cases. An increased incidence of snakebite was found during the months of May to November as 70 percent of the bites were observed during this period. Patients were more susceptible to snake bite after the evening hours as 55% of the bites were observed between 6:00pm to 12:00 am.*
Conclusion: *An increased incidence of snake bite is observed during the later part of monsoon.*
Keywords: *Snake bite, Seasonal variation, site of bite*

I. Introduction

The four important species of venomous or the "big four" snakes are the Cobra, Russell's Viper, Saw Scaled Viper and the Krait.Majority of IndianvenomousSnakes are known to be active during the monsoon and in darkness[1].The season also coincides with the period that the snakes lay their eggs[1]. This poses a particular risk of bite to farmers as they venture to the fields during the monsoon[2]. Snake bite is an important cause of morbidity and mortality in the tropics. The mortality following venomous snake bite is found to be 10,000 per year in India[3]. It was observed that there was an increased incidence of snake bite during the monsoon at other centers.The study was hence carried out to assess a seasonal pattern of snake bite in patients attending the emergency services at our hospital. The time of the day when a patients was most susceptible to bite and the most common site of bite was also assessed in the study. The data can prove to be valuable as educating the public of the increased threat during this period may help in reducing the incidence of snake bite by adopting preventive strategies.

Materials and Methods-The study was conducted at a tertiary care hospital based in Mangalore. It was a prospective cohort study conducted from May 2011 to June 2013. Consent of the patient was taken. Patients presenting with an alleged history of snake bite or an unknown bite presenting with signs of local and systemic envenomation were included into the study. An accurate history regarding the date, time of bite and the circumstances leading to the bite was obtained. The clinical examination comprised of a local examination to look for fang marks and other signs of systemic envenomation such as bleeding,swelling,ecchymosis and cellulitis. An examination of the cardiovascular, respiratory, gastrointestinal and nervous system was also carried out to look for signs of systemic envenomation. The information was captured to a preformatted data sheet.Data was analyzed using frequency mean percentages.

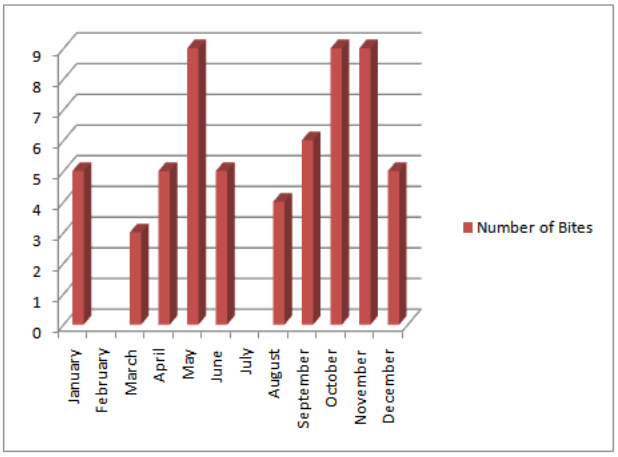
II. Results

A total of 60 patients [35 males and 25 females] were included into the study during the period. The mean age of the patients affected was 38.6± 15.794 years.

III. Seasonal observation

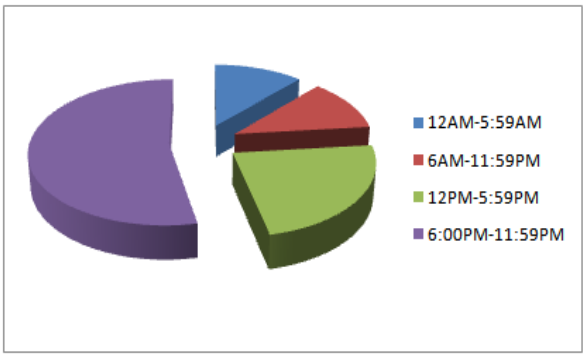
Most bites (70%) were recorded during the months of May to November which constitutes the monsoon. An increase in the number of bites was observed towards the later part of monsoonbetween September to November.

Month	Number of Bites
January	5
February	-
March	3
April	5
May	9
June	5
July	-
August	4
September	6
October	9
November	9
December	5



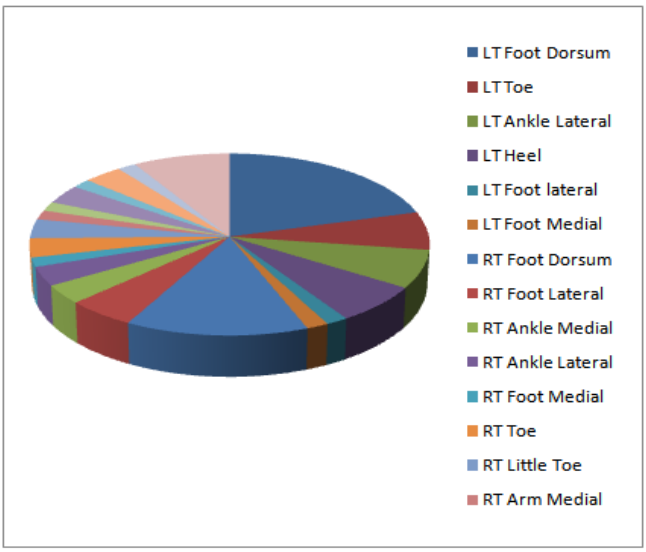
Timing of the bite- The incidence of snake bites was found to be most between 6 pm and 12 am

Time	Number of bites
12AM-5:59AM	7
6AM-11:59PM	7
12PM-5:59PM	14
6:00PM-11:59PM	32



Site of Bite-The lower limbs were found to be the most common site of bite with most bites observed on the dorsum of the left foot (20%) followed by the dorsum of the right foot(13.3%).The other common site of bites were found to be the left index finger(8.3%),the Left toe(6.6%) and the left heel(6.6%).

Site of bite	frequency
LT Foot Dorsum	20%
LT Toe	6.6%
LT Ankle Lateral	6.6%
LT Heel	6.6%
LT Foot lateral	1.6%
LT Foot Medial	1.6%
RT Foot Dorsum	13.3%
RT Foot Lateral	5%
RT Ankle Medial	3.3%
RT Ankle Lateral	3.3%
RT Foot Medial	1.6%
RT Toe	3.3%
RT Little Toe	3.3%
RT Arm Medial	1.6%
RT Hand Dorsum	1.6%
RT Thumb	3.3%
RT Index finger	1.6%
LT Middle finger	3.3%
LT Hand Dorsum	1.6%
LT Index Finger	8.3%



IV. Discussion

The present study consisted of 60 subjects. The male preponderance observed in our study and the age group affected is in close correlation with studies conducted at other centers[4, 5].This may be attributed to their lifestyles involving outdoor activities or occupation as farmers[6].

Most bites in our study were observed during the months of May to November which represents the monsoon. Snakes are known to be more active during this season.[1,2] This poses increased risk to farmers as they venture out to the fields to harvest their crops. Studies conducted at other centers also noticed a similar increase in the incidence of snake bites during the monsoon when compared to the drier summer[7,8].

It was observed that patients were more susceptible to the threat of snake bite during darkness as 53.3% of the bites were observed between 6:00PM and 11:59AM. Other studies also reported an increased incidence of snake bite in the evening hours[6,9].It coincides with the period when snakes are active in search of prey.[1]This may explain the increased risk of snake bite during the period.

Most bites in our study were observed in the lower limbs. This could be as a result of walking bare foot and accidental stepping on a snake in view of poor visibility during the evening hours. Comparison with other studies also showed that patients carried an increased risk of snake bite to the lower limbs[6,9]

Snake bite asan occupational disease becomes particularly important as 70% of the Indian population is involved in agriculture[2.10]. Farmers and individuals involved in outdoor activities should be educated regarding the preventive strategies of snake bite[2]. Education regarding the identification of snakes and prevention of bite has resulted in better outcomes in the form of reduced incidence of bites and mortality at other centers.[11]The WHO has identified snake bite as an important neglected tropical disease.[2] Partnership between the health authorities and citizens can hence play an important role in reducing the burden of this potentially preventable condition.

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