ABSTRACT

BACKGROUND

Urbanization and deforestation has made snake bite an important public health problem. WHO’s inclusion of snake-bite envenoming in the list of category A as neglected tropical diseases in early 2009. In India, snake bite takes a lot of human lives, and therefore warrant urgent attention. High mortality is due to poor rural health services and delay in initiating anti snake venom. It is estimated that there are over 1,000,000 snakebites in India alone leading to between 45 000 and 50 000 deaths annually, although the figure is probably under-rated because most rural Indian population consults a traditional healers and so goes unreported. This study mainly focuses on the Prothrombin and activated Prothrombin Thromboplastin Time as an early marker for detection of snake bite, hematotoxicity as compared to Whole blood clotting time.

PATIENTS AND METHODS

Retrospective cohort study done in Coimbatore Medical College and Hospital during the period Feb 2017 to Feb 2018, a total of 100 patients with history of snake bite and definitive bite marks present, presenting within 6 hours of snake bite were included in study.

RESULTS

In the present study, maximum incidence of snake bite was found in the age of 26-35 years comprising of 56%. 80% of the snake bite occurred in males attributed
mainly to their outdoor activity compared to females. 3% of the snake bites were dry bite, haematotoxic (Viper bite), constituting to 97% of which 5% developed neurotoxicity (respiratory failure). Complications of hematotoxic bite were that 30% developed cellulitis, 7% developed renal failure, 13% developed both cellulitis and renal failure and the rest 10% developed other complications, which are more common complications of Russell’s Viper as seen in South India population. 26% was identified as Russell’s Viper, whereas 74% could not be identified as majority the bites occur in the dark 73%. Bleeding manifestation in the form of bleeding from bite site, mucosal bleed and gum bleed were seen in 8% of the study population. Thus hematotoxic snakebite it is now well recognized that such a strict categorization is not valid as each species can result in any kind of manifestations.

31 of the snake bite presented within 2 hours of bite, 41 within 2-4 hours and 28 within 4-6 hours, the delay in presentation was due to delay referral, delay in transportation and lack of awareness. 30% of patients received ASV within 2 hours of snake bite; 40% of patients within 2 to 4 hours, 27% of patients in 4 to 6 hours, about 3% of patient did not required ASV, thus indicating Dry bite. 31 patients received 10 vials of ASV. 48 patients received 20 vials of ASV. 18 patients received 30 vials of ASV. The mean ASV received by patient who presented at 0-2 hours of bite was 11.6 vials, 2-4 hours was 18.78 vials and 4-6 hours was 23.92 vials. Complications developed in patient presenting within 0-2 hours was 6.5%, within 2-4 hours was 70.7% and within 4-6 hours was 85.7%. The mean duration of stay in hospital among patient who presented within 0-2 hours was 3.03 days, within 2-4 hours was 5 days and that of 4-6 hours was 7.42 days. Thus indicating that early initiation of ASV,
decreases the amount of ASV requirement, decreases the complications and decreases the stay in hospital.

Mortality rate in the study was 4 out of 100 which was in comparison with the national data 4.5 – 5 out of 100 deaths annually. 1 was a female and others 3 were male, the mean age was 42.75 years, all of the presented at 6 hours of bite with bleeding manifestation. 3 of them had renal failure and had to undergo dialysis. 3 had pre-existing co-morbidities. Mean ASV used was 30 vials and mean duration of stay in hospital was 12.5 days.

64% of study population had PT and aPTT alone prolongation, where majority of them presented with 3 hours of snake bite, i.e 54 out of 64. 26% of study population had both PT & aPTT and WBCT prolongation, and 10% had both the tests as normal. Thus screening of patients with Prothrombin Time will help to detect coagulopathy earlier so that antisnake venom (ASV) can be administered earlier and further complications of coagulopathy can be prevented as well as number of vials of ASV given can be reduced in number.

CONCLUSION

Snake bite is a major health hazard in a tropical country like India being significantly associated with morbidity and mortality.

Incidence of snake bite is more common in young males compared to females due to their more outdoor activity.
Even if there is no evidence of envenomation, when they arrive patients should be admitted for observation, ideally for 24 hours. Every hourly symptoms of hematotoxicity, level of consciousness, ptosis, pulse rate and rhythm, blood pressure, respiratory rate, extent of local swelling should be recorded.

Haematological abnormalities are very common in snake envenomation especially in viperidae bites.

Manifestations like bite site bleeding, gum bleeding, hematuria, injection site bleeding are clinical indicators of hematotoxicity which can be prevented by earlier intervetnation with anti-snake venom (ASV).

Many guidelines described an abnormal 20 minute whole blood clotting test as a marker of coagulation abnormality. However Prothrombin Time will be prolonged earlier compared to Whole Blood Clotting Test and before clinical manifestations of hematotoxicity due to snake envenomation and is relatively more sensitive, but clotting time will be significantly prolonged in severe deficiencies of the various coagulation factors.

So Prothrombin Time is a very useful blood investigation in making early diagnosis of Coagulopathy when managing hematotoxic snake bite cases compared to Whole Blood Clotting Test.

**KEYWORDS**

Snake bite, hemotoxicity, coagulation abnormality, complications.