Research Paper

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Case Study on Envenomation Victims of Erode Region, Tamilnadu, South India

Life Science

KEYWORDS : ASV, Cobra (Naja Naja), Envenomation, Krait (Bungaraus Caeruleus), Russell's viper (Daboia Russelli), Snake bite victims

S.JANANI

CONSERVATION BIOLOGY LABORATORY, DEPARTMENT OF ZOOLOGY, SCHOOL OF LIFESCIENCE, BHARATHIAR UNIVERSITY, COIMBATORE-641046

ABSTRACT

The snakes most commonly associated with human mortality in India are Naja naja, Bungaraus caeruleus, and Daboia russelli especially in the south. This study was undertaken to find out the epidemiological profile of envenomation victims admitted to Government hospital in the state of Tamilnadu, Erode region, South India during March. The demographic and clinical details of each case were obtained from the patient's hospital records and analyzed with questionnaires and followed throughout the study. There was no fatality rate during the study period.

INTRODUCTION

Envenoming from poisonous animals, particularly terrestrial venomous snakes, causes substantial illness and death and represents an economic hardship on poor, rural populations and healthcare systems of tropical and subtropical Africa, Asia, Oceania, and Latin America. An international effort is necessary to focus global attention on this neglected and treatable condition. (Cheng, 2001). The World Health Organization (WHO) estimates that <2,500,000 venomous snakebites per year result in 125,000 deaths worldwide, 100,000 of which are in Asia and approximately 20,000 in Africa.(Pinho, 2005; Sitprija, 2006). The first anti-venom for snakes (called an anti-ophidic serum) was developed by Albert Calmette, a French scientist of the Pasteur Institute working at its Indochina branch in 1895, against the Indian Cobra (Naja naja). The majority of anti-venoms (including all snake anti-venoms) are administered intravenously; however, stonefish and red back spider anti-venoms are given intramuscularly. The intramuscular route has been questioned in some situations as not uniformly effective (Isbister, 2002). It has been estimated that 5 million snake-bite cases occur worldwide every year, causing about 100,000 deaths. (Mathew, Gera. Ophitoxaemia, 2004). 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 (David, 2005) But data on the morbidity and mortality of snake-bite are unreliable due to improper reporting system; 80 per cent of individuals bitten by snakes in Africa first consult traditional practitioners before visiting a medical Centre (Snow Chippaux, 1988). The snakes most commonly associated with human mortality in India re cobra (Naja naja), krait (Bungarus caeruleus), Russell's viper (Daboia russelli) and saw scaled viper (Echis carinatus) (Whittaker, 2001).

METHODOLOGY

This was a prospective study of Russell's viper, Spectacled Cobra and Common Krait bite cases admitted to government hospital, Erode, India during March 2012. The demographic and clinical details of each case were obtained from the patients, their relatives and the patients' hospital records, and analyzed. The numbers of snake bite victims are shown in the (TABLE 1)

Data from 8 snake-bite cases were collected using the questionnaires during the study period that includes Name, Age Sex ,Fang Marks ,Location Of The Incident, Site Of Bite, Patients Position At The Time Of Bite ,General Symptoms, Local Symptoms And Medical History.

Out of those 8 patients who saw the snakes 6(89%) were able to identify the snakes, 8(100%) patients had definite identification fang mark varied between foot, and leg 6(85%) patients and hand .The victim profile is shown in (Table 1). Prothrombine clot (PT) minutes blood clotting time (20WBCT) & Bleeding clotting time was done every 2nd hour for all patients till getting a positive results for the initial month. All the patients who had an abnormal test received ASV according to a standard protocol. If the test was positive then the 20WBCT were repeated every six hours to know the clinical improvement. More over 8 patients with snake bite were admitted in government hospital, Erode. There were 5 (94%) male and 3 (6%) female patients Age range between 24-75years. Six patients gave history of seeing the snake themselves and 2(11%) patients could not see the snakes in the darkness.

Higher incidence of snake-bite was recorded in males (Fig.1). Of the 8 cases analyzed, 4 cases tested positive for Russell's viper bite, while 2 cases tested positive for krait venom, the remaining 2 tested for spectacled cobra venom. The effects of the venom according to the species are shown in the Blood clotting time for the 8 patients were found to be < 20(WBCT). Thus it resulted in a normal clotting level and no abnormal features were noted. Prompt treatment can reduce morbidity and mortality associated with this distressing transport, condition. ASV is the only effective and specific treatment available for snakebite envenomation. Specific ASV treatment was given in the majority of cases. 1 ml of polyvalent ASV neutralizes 0.6 mg, 0.45 mg, 0.6 mg and 0.45 mg of venom of common cobra, krait, Russell's viper and saw-scaled viper, respectively. Freeze dried (lyophilized) polyvalent ASV is reconstituted with 10 ml of sterile water and 0.1 ml of it is given intra-dermally as a test dose. The patient is then carefully observed for allergic manifestations for half an hour. The reconstituted venom is then diluted in 500 ml of isotonic saline or 5% dextrose and infused at a constant rate over a period of about one hour. Polyvalent ASV infusion is continued until bleeding tendency is controlled. If there are allergic reactions in the form of fever, itching or urticaria, polyvalent ASV administration is continued with corticosteroids and antihistaminics.

DRUGS USED FOR THE ENVENOMATION VICTIMS

Spectacled cobra: Tetanus toxoid, adrenaline (anaphylaxis reaction) - intramuscular is made into 2 syringes (Neostigmine-intramuscular (to recover respiratory failure), atropine-intravenous. ASV (8-10 vials), paracetamol (body pain), Hydrocortisone (Anaphylactic Reactions)-Intravascular, Antibiotics

Russell's viper: Tetanus toxoid, adrenaline (anaphylaxis reaction) - intramuscular is made into 2 syringes, atropine-intravenous. ASV (8-10 vials), Antibiotics

Common krait: Tetanus toxoid, adrenaline (anaphylaxis reaction) - intramuscular is made into 2 syringes (Neostigmine-intramuscular (to recover respiratory failure), atropine-intravenous. ASV (8-10 vials), paracetamol (body pain), Hydrocortisone (Anaphylactic Reactions)-Intravascular, Antibiotics

RESULTS AND DISCUSSION

According to the case study the snake bite victims were examined under the symptoms of COAGULOPATHY, NEUROTOXIC, CARDIOVASCULAR, RENAL AND MUSCULARTOXIC .In the case of Indian Cobra bite, krait and Russell's viper the victims were seen with head ache, bleed from sight of bite, drooping eyelids, facial muscles (unable to hold air in mouth), giddiness, tenderness of muscles and cellulites (Fig .2) .The renal system was normal .According to the medical history Blood test and the Urine test was done frequently (2-3 times).The blood clotting rate was <20(WBCT).There was no death rate throughout the case study.

CONCLUSION

Reptiles mean no harm to human until they are stepped onto. The usage of safety footwear and proper secured travel using illumination at night could reduce the incidence of snakebites. Deep vegetation and grassy lands in the fields must be noticed keenly especially after the heavy rain. The areas surrounding human dwellings should be kept free from household debris and other unwanted litter. This would prevent the entry of snakes and the rodents into human dwellings. Proper transportation of snakebite victims to the hospital, along with prompt administration of ASV, remains the mainstay to reduce the risk factors. Still awareness is an urgent need for the people to keep them away from such lethal snake bites. .

Table 1: Victim Profile and Related Features in Cobra, Viper and Krait

FEATURES	NO OF PATIENTS %
GENDER Male Female	 5 (58.1) 3 (41.9)
OCCUPATION Farming Others	 6 (93.5) 2 (6.5)
DIURNAL VARIATION Day Night	 7 (77.6) 1 (22.4)
PLACE Outdoors Indoors	 7 (80.6) 1 (19.4)
SITE OF BITE Hand Foot Ankle	 1 (12) 3 (30.5) 4 (67.5)
FANG MARKS Single Double Scratches	 5 (75) 3 (25) 0

Fig. 1:Interogation with the patient

Fig.2: Cobra bite victim in left leg

Fig.3:Fang marks of Russells viper

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