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Current scenario of snakebite in Gwalior Chambal Region: A prospective study

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Abstract
Background: Management of snakebite victims includes an appropriate first aid and treatment in hospital. Recognizing early symptoms of envenomation and arranging for early transport to a health care facility will avert deaths.
Aims and Objective: To study clinic epidemiological factors of snakebite victims.
Materials and Methods: Hundred snakebite victims were studied at Gajra Raja Medical College Gwalior from April 2014 to November 2015. A questionnaire was prepared and information regarding demography, time and site of the bite, type of snake, visit to traditional healer, tourniquets, fang marks, local and systemic examination, relevant laboratory investigations, complications and outcome of the case was recorded in a preapproved proforma.
Results: Majority of the snakebite victims were male (69%), belong to young age group of 21-30 years (26%). The most common site of bite was in lower extremity (70%).Majority of the victims (48%) reached hospital after six hours. Thirty nine percent of the snakebite victims presented with tourniquet. Majority of the victims still used to visit (30%) traditional healer before reaching hospital. Majority of the patients (81%) had fang marks present. Majority developed neurotoxicity (92%) and mortality was recorded in 4%.
Conclusion: Neuroparalytic envenomation was most common. People still visit traditional healers. Prehospital management of snakebite remains suboptimal.

Keywords: envenomation, fang marks, first-aid, snakebite, tourniquets

Introduction

Snake bite envenomation is an emergency and needs urgent intervention and evidence based management. Despite understanding of clinical features of envenomation, snakebite management involves so many cultural, geographical and personal beliefs posing challenges in management and remains unsatisfactory in India [1].

Inappropriate first-aid measures are often applied and crucial time is lost in consulting traditional healers before the victim is transported to a hospital, and this delay often increases the chances of complications, delay in recovery and cost of treatment [1, 2].

Tourniquets should not to be used. By confining the toxin there may be a risk of serious local damage with necrotic venom. Tourniquets lead to higher rate of amputation and tourniquets do not stop the venom from entering the body [3]. Most of the fatalities are due to the victim not reaching the hospital in time where definite treatment can be administered.

Bites by venomous snakes in this region can cause local tissue damage, neuroparalysis, systemic haemorrhages, generalized myotoxicity, acute renal failure, or complex combinations of these. Treatment mainly relies on the administration of antivenom and supportive measures [4] hence, in present study we tried to study the current scenario of snakebite in Gwalior Chambal region of central India.

Material and Method

This prospective, descriptive study was carried out on 100 snakebite victims at Gajra Raja Medical College Gwalior, India over a period of one and a half year from April 2014 to November 2015.

The patients of definitive snake bite with toxicity admitted in medicine intensive care unit (ICU) of JA group of Hospital, Gwalior, MP were enrolled. Victims of unknown bite were excluded from the present study.

Informed and written consent was obtained from eligible patients prior to enrollment in the present study

A questionnaire was prepared and information regarding demography, the time and site of the bite, type of snake, visit to traditional healer, tourniquets, fang marks, local and relevant systemic examination, relevant laboratory investigation and complications were recorded.

Twenty Minutes whole blood clotting test (20 MWBCT) was done in all the patients. All those presenting with toxicity were given antisnakevenom (ASV) and supportive management.

Results

Majority of the snakebite patients were male (69%). Snakebite was more common in the age group of21-30 years (26%).

Majority have received bite at night (55%) and 42% received at day time. The most common site of bite was in lower

extremity (70%) followed by upper extremity (19%). Thirty percent cases visited traditional healer before reaching hospital.

Fang marks were present in majority of patients (81%), 92% patients had neurotoxicity and local toxicity appeared in 42%.

Most common symptom in snakebite patient was ptosis (74%). Deranged renal parameters were observed in 20%victims of snake bite. Leucocytosis was present in 14%.

Forty one percent cases received 15 vials ASV and 30% received 10 (10%) vials ASV. Majority of the patients (96%) patients recovered and 4%died in hospital due to cardiac arrest while on ventilator.

Discussion

The most common poisonous snakes in India are Elapidae, which includes common cobra, king cobra and common krait, Viperidae includes Russell's viper, Saw scaled or carpet viper and pit viper and Hydrophidae [1, 5]. Early arrival at the primary care centre is important to lower the morbidity and mortality.

Our study showed male preponderance (69%) and bites were more frequent in young men. Poorly informed rural populations often apply inappropriate first-aid measures. Thirty nine percent patients presented with tourniquet. This practice needs to be stopped as it may lead to complications like amputation.

In recent years, first aid measures for snake bites have been radically revised to exclude methods that were found to worsen a patient's condition, such as tight (arterial) tourniquets, aggressive wound incisions etc. Initial treatment measures should include avoiding excessive activity, immobilizing the bitten extremity, and quickly transporting the victim to the nearest treatment.

People try out all kinds of "bizarre remedies" initially, instead of going to the nearest hospital Inappropriate first-aid measures are often applied and crucial time is lost before the victim is transported to a treatment centre, where cost of treatment is another concern [4].

Reports on the incidence of snake bites in India remain elusive as many snake bite victims are treated by traditional practitioners and not in hospitals. In present study 30% patients visited traditional healer before reaching hospital. Till date people continue to have faith in traditional practices. Disadvantage is that delay in treatment may be hazardous for some of them. Educating the public is important. It is a fact that inspite of heavy morbidity and mortality, very little attention is being paid to this occupational hazard [6].

In present study majority were presented with fang marks. No fang marks could be seen in 19%patients therefore in the absence of fang marks one need to be cautious. In areas where snake bites are endemic,the possibility of elapid snake bite in patients with unexplained neuroparalytic syndrome should be kept in mind even in the absence of history of snake bite. Prompt therapy even in the most severe cases is associated with excellent outcomes [7].

The most common site of bite was lower extremity followed by upper extremity. Similar findings were observed in a study by Bhalla *et al.* [8]

Lag time (i.e. from bite to hospitalization) was<6 hours in 52% and 92% patients had neurotoxicity, 2% had hematotoxicity and local toxicity was noticed in 42%.

The clinical picture may be dominated by swelling and soft tissue necrosis in the bitten limb, or by systemic or neurological manifestations. Serious neurological complications, including stroke and muscle paralysis, are related to the toxic effects of the venom, which contains a complex mixture of toxins affecting the coagulation cascade, the neuromuscular transmission, or both.

Snakebites may sometime mimic brain death and pose a problem to the caregivers regarding continuation of therapy. Ischemic stroke following viper bite has been reported [9].

In present study snakebite victims required between 5 – 25 vials of ASV, 41% patients received 15 vials ASV. Early administration of ASV reduces the risk of complications [10]. There is no difference between protocol using lower doses of ASV and one with higher doses in the management of patients with severe neurotoxic snake envenoming [11].

There are many potential reasons for antivenom failure in human envenoming. Antivenom inefficacy or antivenom is not able to reach the site of toxin [12].

Deranged renal parameters were observed in 20% victims of snake bite. The exact pathogenesis of ARF following snake bite in not well established. However, a number of factors may contribute like, bleeding, hypotension, circulatory collapse, intravascular hemolysis, disseminated intravascular coagulation, microangiopathic hemolytic anemia and also direct nephrotoxicity of the venom [13]. Early intervention and aggressive treatment is needed for a favorable outcome [14, 15].

Immediate endotracheal intubation is necessary in patients with bulbar involvement to protect airway. Weaning from mechanical ventilation is relatively easy as the lungs are healthy [16].

Snakebite remains an important cause of accidental death in modern India, and its public health importance has been underestimated. Effective interventions involving education and antivenom provision would reduce snakebite deaths in India.

In the tropics, snake bite is common in rural population and is an occupational hazard among farmers, plantation workers, herders and hunters. Regular public health programmes regarding the prevention, pre –hospital management (first aid) and the importance of the early transfer to the hospital should be emphasized [17, 18].

Small sample size and cross sectional nature of the study was the main limitation of the study; a large clinical trial is required to strengthen the present study findings.

Conclusion

Neuroparalytic envenomation was the commonest pattern encountered in and around Gwalior Chambal region. People still have faith in traditional healers. A large number of snakebite victims reached tertiary care after six hours of bite. Prehospital management of snakebite remains suboptimal. Most of the people are unaware of the risks of tying tourniquets.

Snakebite affects the most productive age group between 21 to 50 years with a male preponderance. Bites are more frequent in lower limbs and occur mainly during night. Importance of

early transfer to a well equipped medical facility should be emphasized. In neuroparalytic snakebite asphyxia due to bulbar paralysis or respiratory failure due to respiratory muscle paralysis may complicate the course of illness. Immediate endotracheal intubation is necessary in patients with significant bulbar involvement to protect the airway as asphyxia may lead to death. Mechanical ventilator support along with ASV therapy is the cornerstone of management in patients with respiratory failure due to severe neuroparalytic snake envenomation. Regular public health programmes to create awareness regarding the do's and dont's of first aid and avoiding arrival delays may be helpful in improving outcomes.

References

1. Pandey PC, Bajaj S, Srivastava A. A Clinico-Epidemiological Profile of Neuroparalytic Snake Bite: Using Low Dose ASV in a Tertiary Care Centre from North India. Journal of The Association of Physicians of India. 2016; 64:16-20.
2. Agrawal A, Gupta A, Khanna A. What dose of anti-snake venom should be given in severe neuroparalytic snake bite? Ann Thorac Med. 2011; 6:47-48.
3. Ahmed SM, Ahmed M, Nadeem A, Mahajan J, Choudhary A, Pal J. Emergency treatment of a snake bite: Pearls from literature. Journal of Emergencies, Trauma and Shock. 2008; 1(2):97-105.
4. Gupta YK, Peshin SS. Snake bite in India: current scenario of an old problem. Journal of Clinical Toxicology, 2014.
5. Tariang DD, Philip PJ, Alexander G, Macaden S. Randomized controlled trial on the effective dose of anti-snake venom in cases of snake bite with systemic envenomation. J Assoc Physicians India. 1999; 47:369-71.
6. David Warrell A. Envenoming by snakes and venomous arthropods. API Text book of medicine. 6th Edition. Mumbai. The Association of Physicians of India, 1999.
7. Punde DP. Management of Snake Bite in rural Maharashtra. A 10 year experience. The national medical journal of India. 2005; 18:71-5.
8. Bhalla G, Mhaskar D, Agarwal A. A Study of Clinical Profile of Snake Bite at a Tertiary Care Centre. Toxicol Int. 2014; 21(2):203-208.
9. Saini RK, Arya RK. Severe hypofibrinogenaemia after snake bite. J Assoc Physicians India. 1987; 35(5):367-368.
10. Saini RK, Arya RK, Gupta VK, Pathania NS. Coagulation defects in Snake bite poisoning. J Assoc physicians India. 1985; 33(2):148-151.
11. Seneviratne U, Dissanayayake S. Neurological manifestations of snake bite in Srilanka. J Postgrad Med. 2002; 48:275-8.
12. Agarwal PN, Agarwal AN, Gupta D, Behera D, Prabhakar S, Jindal SK. Management of respiratory failure in severe neuroparalytic snake evenomation. Neurol India. 2001; 49:25-28.
13. Panicker JN, Madhusudhan S. Cerebral infarction in a young male following viper envenomation. J Assoc Physicians India. 2000; 48(7):744-5.
14. Kularatne SAM. Common Krait (*Bungarus Caeruleus*) bite in Anuradhapura, Srilanka: a prospective clinical study, 1996-98.Post graduate medical journal. 2002; 78:276-280.
15. Malhotra P, Sharma N, Awasthi A, Vasishta RK. Fatal acute disseminated encephalomyelitis following treated snake bite in India. Emerg med J. 2005; 22:308-309.
16. Sabharwal RK, Snachetee PC, Sethi PK, Gandi SC. Sudden bilateral deafness following snake bite. J Assoc Physicians India. 1987; 35(10):735-6.
17. Takeshita T, Yamada K, Hanada M, Oda-Ueda N. Extra ocular muscle paresis caused by snake bite. KOBE J Med. Sci. 2003; 49(1):11-5.
18. Maheshwari M, Mittal SR. Acute myocardial infarction complicating snake bite. J. Assoc physicians india. 2004; 52:63-4.