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CASE REPORT- VIPER BITE ENVENOMATION

Toxicology

Merin Elza Anil* Pharm.D Intern, Nazareth College of Pharmacy Othera, Thiruvalla *Corresponding Author

Hannah Elizabeth Sabu Pharm.D Intern, Nazareth College of Pharmacy Othera, Thiruvalla

Meeval Skariah Pharm.D Intern, Nazareth College of Pharmacy Othera, Thiruvalla

Dr. Shahul Hameed M. M Professor and Head of Department, Department of General Medicine, Believers Church Medical College Hospital, Thiruvalla

Dr. Sunil Antony Associate Professor, Department of General Medicine, Believers Church Medical College Hospital, Thiruvalla

ABSTRACT

Envenoming by venomous snakes is an acute life threatening, time limiting medical emergency. Rapid assessment of acute hemorrhagic disorders, renal, neuro respiratory, and hemodynamic failure following a snake bite and prompt management can save lives. Antivenom is the definitive treatment, although the specific type of antivenom depends on the snake species.(1) Herein we report a case of a 60 year old female who presented with an unknown bite on her left leg , her initial parameters were normal and later on it developed into coagulopathy and AKI. The patient improved with antisnake venom, dialysis, and other supportive management.

KEYWORDS

Snake bite, Anti snake venom , Acute Kidney Injury, Coagulopathy

INTRODUCTION

Snakes are carnivorous, elongated, limbless reptiles that belong to the Serpentes suborder. Snakes are ectothermic, amniote animals with scales that overlap, just like all other squamates. [2] Snakes can regulate the quantity of venom they release, and they can bite either aggressively to get at prey or defensively to defend themselves. Snakes do not want to squander their limited supply of venom, which they have at their disposal at all times, on non prey species. As a result, roughly 40% of bites that humans receive are defensive and "dry."[3]

Venomous snakes belong to the Colubridae (bird snakes), Atractpididae, Elapidae (Cobras, Kraits, Mambas), Viperidae (true vipers, pit vipers) and Hydrophiidae (sea snakes) family. Non venomous snakes include (rock python) [4]

Every year in India 200,000 people are bitten by snakes and >25% are fatal. (5) The principal effects of envenomation are on the nervous system, kidneys, heart, blood coagulability, vascular endothelium, and locally at the site of bite. The majority of snakebite victims are members of the rural community who are bitten while working in the fields or while sleeping outside. In India, the poisonous snakes belong to the elapid family of the cobra and krait and the viper family of the Russel's viper and the saw scaled viper. [6]

A detailed patient history, focused examination, and relevant laboratory tests are necessary for a basic diagnosis of snakebite envenoming. Neurotoxicity is often related to bites by cobras, king cobras, and kraits.While hemotoxicity typically indicates envenoming by a true viper or pit viper, it may also occasionally indicate envenoming by a colubrid. Cobra bites are frequently linked with strong local envenoming evidence, but krait bites are frequently associated with delayed onset and a prolonged overall length of paralysis. [7]

Initial management includes protecting airway obstruction, respiratory paralysis, and shock by restoring airway, oxygen, intubation, and assisted ventilation as needed, and intravenous fluids. Antivenom is the specific antidote for snakebite envenoming.It is recommended when a patient with proven or suspected snake bite develops one or more of signs of systemic envenomation—hemostatic abnormalities: spontaneous systemic bleeding, coagulopathy (20WBCT), or thrombocytopenia (< 100 × 103/mL); neurotoxic signs: ptosis, paralysis, etc.; cardiovascular abnormalities: hypotension, shock, cardiac arrhythmia, or abnormal electrocardiogram; AKI: oliguria/anuria, rising blood urea, and creatinine (> 2 mg/dL); hemoglobinuria/myoglobinuria: dark brown urine, urine dipsticks, evidence of intravascular hemolysis, or generalized rhabdomyolysis; or local envenomation—local swelling involving more than half of the bitten limb (in the absence of a tourniquet) swelling after bites on the digits (toes and fingers).[8] We herein discuss a case of viperid envenomation presenting with a state of shock, acute kidney injury, coagulopathy, sepsis.

Case Report

A 60 year old female patient presented with an alleged history of unknown bite for which she was taken to local hospital ASV 15 vials given. Her peripheral smear was suggestive of DIC and she was tranfused with two unit PRBC , ten unit FFP and nine unit platelets. Her blood parameters showed deranged renal parameters and anuria. She was initiated on hemodialysis and underwent four sessions of hemodialysis. She developed Right femoral dialysis catheter site haematoma for which femoral catheter was removed. She also developed haematoma of the cervical space- associated with dialysis catheter insertion and underlying DIC. The cervical haematoma was causing tracheal and laryngeal compression, causing respiratory distress. Soon after she went into cardiac arrest on the seventh day of hospital admission, two cycles CPR was given, ROSC attained and intubated. Patient was referred to our hospital with inotropic support for further management.

On presentation her blood investigations showed anemia with hemoglobin 6.5 gm%, neutrophil predominant leukocytosis. Renal function tests and Serum electrolytes were deranged.She was diagnosed to have a viper envenomation. Patient was started on INJ. MEROPENEM, INJ. LEVOFLOXACIN and kept in fluid restriction. D dimer was elevated ,serum procalcitonin was elevated. Hematology consultation decided to give 8 pint cryoprecipitate , due to reduced Hb levels ,1 unit PRBC transfusion was done and hemoglobin was elevated to 9.2 mg/dl. Initially she was managed conservatively, but later as she was anuric and in fluid overload, hemodialysis was re-started via a new Left femoral catheter. Patient's vitals, renal function , blood counts, serum electrolytes, and clotting were daily monitored. Her DIC resolved. She was then extubated. Haemodialysis was continued on alternate days. Strict Intake output was charted and Daily weight monitoring was done. Her urine output slowly improved .As the renal parameters improved and she had adequate urine output hence, her left femoral temporary dialysis catheter was removed. Patient was clinically stable and thus discharged with the advice to adhere to medications.

DISCUSSION

Snakebite poisoning is a medical emergency that needs to be treated

right away. Russell's viper and saw-scaled viper bites account for the majority of AKI cases. Hypotension, hemolysis, rhabdomyolysis, disseminated intravascular coagulation (DIC), direct cytotoxic effect of the venom, sepsis, hemodynamic changes, and cell injury brought on by the release of proinflammatory cytokines and vasoactive mediators are all part of the pathogenesis of AKI in snake envenomation. [9]AKI resulting from snake envenomation is accompanied by considerable risk of mortality. The greater the stage number of AKI, the poorer the outcome.Prompt diagnosis and early dialysis and plasmapheresis may improve the renal outcome.

Viper bites can also cause coagulopathy. Initial lower cholesterol level could be a risk factor of developing overt DIC. The risk of coagulopathy should be assessed for at least 4 to 5 days following snakebite. Higher doses of antivenom and transfusion with FFP or cryoprecipitate may be unbeneficial for patients without bleeding.[10]

In this case the patient developed coagulopathic effects and AKI . She was treated with ASV and underwent cycles of dialysis.

CONCLUSION

Snake Bites can result in a wide range of symptoms with varying degrees of severity.Availability of antivenom at primary healthcare centers and rapid transportation facilities may change the morbidity associated with snakebites. There is an urgent need to educate the rural population about the hazards and treatment of snakebites

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Conflicts Of Interest

There are no conflicts of interest.

Abbreviations

ASV - Anti Snake Venom
DIC - Disseminated intravascular coagulation
PRBC - Packed red blood cells
FFP - Fresh frozen plasma
CPR - Cardiopulmonary resuscitation
ROSC - Return of spontaneous circulation

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