



ORIGINAL ARTICLE

MEAN EFFECTIVE DOSE OF ANTI SNAKE VENOM IN HAEMOTOXIC SNAKE BITE

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ABSTRACT

AIM: To assess the optimum dose of Anti Snake Venom to treat haemotoxic snake bite effectively. **Methods:**After formal approval from the ethical committee this study was conducted on 60 adult patients of either sex, of age more than 18 years and those who presented with signs of haemotoxic envenomation. This study was conducted in the Emergency room and ICU of RMMCH between the period of January 2013 and June 2014. All the patients were subjected to whole blood clotting time , routine blood investigations, prothrombin time, haemoglobin, and platelet count on arrival in the Emergency room and subsequently in ICU. Patients with envenomation were graded as mild, moderate and severe envenomation depending on the presentation to the casualty. **Results:**Total dose of Anti snake venom infused in patients with mild, moderate and severe degree of envenomation is 800 ml, 3600 ml and 4600 ml respectively. **Conclusion:**Mean effective dose of Anti snake venom for haemotoxic snake bite patients was found to be. Mild, Moderate, Severe degree of envenomation was found to be 4, 18, 23 vials respectively. Incidence of mortality is 10% (6 patients) which includes 3 patients of moderate and severe degree of envenomation respectively. Hence mortality in haemotoxic snake bite has no correlation to initial presentation of snake bite patients.

Keywords: Anti Snake Venom, Snake Bite

1.INTRODUCTION

Snake bite is a major public health problem throughout the world especially in tropical & subtropical countries. Snake venom is probably the oldest know poison to mankind and has been described in oldest medical writings and myths. Russell's viper snake grows to a length of about 1.5 meters. Its colour is brown or buff and has three rows of black diamond shaped spots or chains on the back. It is stouter than any other poisonous snake in India. It can be identified by a) A flat triangular head with a distinct V mark with its apex pointing forward, b) Small head scales, c) Broad undivided belly plates and d) A narrow short tail with shields divided in two rows. Its nostrils are bigger than those of other Indian snakes. It makes a terrific hissing sound when it is about to bite. It prefers plains. It is found throughout the India but not in dense jungles. Whole blood clotting time is a very useful and informative bedside test which requires very little skill and only one piece of apparatus. A new clean, dry glass vessel is used. Place 2 ml of freshly prepared sampled venous blood in a small new or heated, cleaned, dry glass vessel. Leave it undisturbed for

twenty minutes at ambient temperature. Tilt the vessel if the blood is still liquid it is called coaguable blood because of venom induced coagulopathy. In south east region uncoaguable blood is a diagnostic of Russell's viper snake bite. This test is done repeatedly after 6 hours of infusion of anti snake venom. Therefore whole blood clotting test is a very good indicator for diagnosing and assessing the progression of Russell's viper snake bite envenomation.

2.METHODS

After formal approval from the ethical committee this study was conducted on 60 adult patients of either sex, of age more than 18 years and those who presented with signs of haemotoxic envenomation. This study was conducted in the Emergency room and ICU of RMMCH between the period of January 2013 and June 2014. All the patients were subjected to whole blood clotting time , routine blood investigations, prothrombin time, haemoglobin, and platelet count on arrival in the Emergency room and subsequently in ICU. Patients with envenomation were graded as mild, moderate and severe envenomation depending on the presentation to the casualty.

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Anti snake venom is infused as per WHO guidelines. If WBCT > 20 min ,8-10 vials of polyvalent anti snake venom is given in 250 ml normal saline or 5% dextrose over 1 hour.

Whole blood clotting time is seen 6 hours after initial dose. If still prolonged then ASV infusion can be given. In divided doses maximum of upto 20 vials is given per day.

The number of vials required to make whole blood clotting time is calculated. Blood transfusion and ventilator management were done to the patient in need of it.

Degree of envenomation	Clinical Features
Mild	History of haemotoxic bite. WBCT < 20 min in casualty, no signs of systemic envenomation.
Moderate	WBCT >20 min , pain, swelling , mild laboratory investigation abnormalities.
Severe	WBCT >20 min, localised edema, necrosis, paralysis, severe laboratory abnormalities, threatening conditions in need of supportive management like blood and blood products, ventilator support and dialysis.

3.RESULTS

Out of 60 patients twenty patients were seen in mild, moderate and severe degree of envenomation respectively. Total number of patients with fang marks were found to be 30 patients (50%) which includes mild degree of envenomation – 8 patients, moderate degree of envenomation – 11 patients and severe degree of envenomation – 11 patients. Total number of patients with anaphylaxis following Infusion of Anti snake venom is 15 patients (25%) which includes mild degree of envenomation – 3 patients, moderate degree of envenomation - 6 patients and Severe degree of envenomation – 6 patients. Total Number of patients who had severe respiratory failure were subjected to ventilatory support is 6 patients (10%) which includes moderate degree of envenomation – 2 patients and severe degree of envenomation – 4 patients. Total Number of patients went on Acute Renal failure was subjected for dialysis is 6(10%) which includes moderate degree of envenomation – 3 patients and severe degree of envenomation – 3 patients. Total Number of patients blood transfusion done was 10(16%) which includes mild degree of envenomation – 2 patients, moderate degree of envenomation – 4 patients and severe degree of envenomation – 4 patients. Incidence of mortality is 6 patients (10%) which includes moderate degree of envenomation – 3 patients. Severe degree of envenomation – 3 patients. Total Number of male patients presented with history of Russels viper snake bite are 39 patients. Total Number of female patients presented with history of Russels viper snake bite are 21 patients. Out of 20 patients with mild degree of envenomation, 12 patients showed whole blood clotting time lesser than 20 minutes when it was taken initially and remained the same when it was taken after 6 hours.

4.DISCUSSION

Our study also found that out of 20 patients with mild degree of envenomation 40% (8patients) showed elevation of whole blood clotting time during treatment though initial whole blood clotting time was normal. J. Sreramanarayana, (2004) study revealed that 26% of patients with mild degree of envenomation showed elevation of clotting time during treatment though initial clotting time was normal. Our study also conclude that approximately 25% of patients receiving antsnake venom develop anaphylatic reaction. Syed Moeid Ahmed, Mohib Ahmed (2008) Study which Indicated that every 20% of patients receiving antsnake venom develop anaphylatic reactions. Our study revealed out of 60 patients 16% (10 patients) were in need of transfusion. Azif Raza Bhatt (2010) study revealed out of 52 patients 13% (7 patients) were in need of blood transfusion. Our study revealed mean effective dose to treat haemotoxic snake bite patients is 230 ml for patients with severe degree of envenomation and 180 ml for patients with moderate degree of envenomation and 40 ml for patients with mild degree of envenomation. Pramila Devi (2012) study revealed mean dose of anti snake venom in haemotoxic snakebite patient is 23 vials. Our study revealed in all degree of envenomation incidence of snake bite is higher in males. Pramiladevi. R, Gooranavar (2012) Study revealed incidence of snake bite is higher in males (56%), compared to female. Our study suggested 10% (6 patients) presented with acute renal failure. Monteiro FNP (2012) Study found out of 31 patients 7% (2 patients) presented with acute renal failure. Our study revealed that out of 60 patients 30 patients had fang marks. Monteiro FNP (2012) made a study of clinical epidemiological features of Russel viper bite. Out of 31viper bite patients, 29 patients had fang marks. Our study revealed out of 60 patients 10% (6 patients) died. Mathivani, M. (2013), Study revealed mortality rate was 6.5%. Our study revealed mean effective dose to treat haemotoxic snake bite patients with mild, moderate, severe envenomation was 4, 18, 23 vials respectively. Mathivani, M (2013) study revealed mean dose to treat haemotoxic snakebite is 12.39 vials. Our study also revealed 10% (6 patients) presented with respiratory failure. Dr. Nagnath Redewad (2014) Study revealed 7.4% of patients were presented with respiratory failure.

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