

Study of snakebite cases referred to Yangon General Hospital

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A total of 266 snakebite cases (173 retrospective plus 93 prospective) referred to Yangon General Hospital from January 1999 to April 2001 were reviewed. Since clinical features, complications and outcome of two study groups were similar data were grouped and presented together. Forty seven percent of the referrals were from Yangon division. Majority 77% of the bites were due to Russell's viper (*D.r. siamensis*), 15% cobra (*N. kaouthia*), 7% unknown, 0.3% sea snake and 0.3% green pit viper. Majority (73%) of Russell's bites were referred for impending or established acute renal failure and 88% finally developed acute renal failure. Thirty one percent of them still had incoagulable blood on admission. Majority 70% of acute renal failure cases underwent peritoneal dialysis and 23% died whereas 54% of the remaining cases presented with shock and no peritoneal dialysis died. Fifty-one percent (20/39) of cobra bites were referred to intensive care unit, of these 30% (6/20) needed ventilatory support. 37% (7/19) of unknown bites were given one to four ampoules of either Russell's viper or cobra antivenom. One sea snakebite case referred for further management died in spite of conservative treatment. No specific antivenom was available for treatment of sea snake or green pit viper bites.

INTRODUCTION

Snakebite is one of the priority health problems in Myanmar. Geographical variation in Russell's viper (*Daboia russelii siamensis*) (RV) venom [1] and variation in clinical features of the Russell's viper bite cases admitted to township hospitals [2,3] had been reported. An earlier study on snakebite cases admitted to the Renal Medical Unit of the Yangon General Hospital in 1993-1994 was focused on causes of death following peritoneal dialysis in acute renal failure cases following Russell's viper bites [4]. Yangon General Hospital is known as a main referral centre for renal dialysis and ventilatory support for neurotoxic envenoming patients. It is likely that the clinical details of the snakebite cases referred to YGH will be different from

those of township hospitals [2]. The main objective of this study is to determine the pattern of referral snakebite cases to YGH.

MATERIALS AND METHODS

Snakebite cases referred to YGH from January 1999 to July 2000 were reviewed retrospectively. For prospective study, snakebite cases admitted to the hospital from August 2000 to April 2001 were also studied. Clinical parameters of the cases were recorded in proforma. The clotting status was assessed at the time of admission and repeated at 6hr interval until clotted for cases presented with incoagulable blood. Charts with incomplete information were excluded from the study.

Cobra bite

Majority 74% (n29/35) of cobra bites were referred for management of neurotoxic symptoms, 15% (n6) for impending respiratory failure and 10% (n4) for further management. Four were bitten at the hand, 3 foot, 2 leg and 1 back of the trunk. Four were bitten while working or staying at home or in house compound. Most bites 60% (n6) occurred during daytime and 90% (9/10) applied tourniquet.

Cobra bite cases arrived at YGH in 6 h (2-42 hrs) and 85% (n33) of them received 1-4 amp of ASV and 8% (n3) 8 amp, 8% (n3) no ASV. Thirty eight percent (n15) were given 1 to 8 amp of ASV on admission. Clinical features include: 51% (n20) local painful swelling, 21% (n8) necrosis, cellulitis and ulcer, 56%(n22) drowsiness, 31% (n12) dyspnea, 18%(n6) shallow respiration, 15%(n6) cyanosis & respiratory failure, 15% (n6) dysphagia, 13% (n5) slurred speech, ptosis & heavy eyelids, 10% (n4) tachypnea, 8% (n3) blurred vision, 5% (n2) diplopia and 3% (n1) vomiting, unilateral lung collapse & shock. Fifty one percent (20/39) of cobra bites were referred to Intensive Care Unit and ventilatory support was needed in 30%(6/20). Majority 97% (38/39) of the bites survived except one died at the time of admission.

Sea snake bite

One sea snake bite was referred from Shwepyithar hospital for further management as an unknown bite with neuromuscular symptoms 18h after the bite. Eight amp of cobra ASV were given before referral. He developed local swelling, drowsiness, dyspnea, tachypnea, severe myalgia, vomiting and shock, and despite supportive therapy, died within one day after admission.

Green pit viper bite

One green pit viper bite was referred as an unknown bite with painful local swelling and prolonged clotting time and was

admitted to the hospital within 3 hrs after bite. The patient had incoagulable blood until discharged (2 days) from the hospital. No antivenom was given to the patient.

Unknown bites

19 unknown bites were referred for further management and arrived at the hospital in 4 hrs after the bites. All had slight local swelling and fang mark. They did not develop systemic envenomation. 7 cases received 1-4 amp of either RV or cobra ASV before referral.

DISCUSSION

Study of referral snakebite cases to the YGH shows the majority of them came from Yangon division because of close distance to the referral site. Twelve percent of the referrals from Magwe division take 10-12 hrs to get to Yangon and it would be time saving and more economical if dialysis could be carried out in regional hospitals.

Russell's viper bite cases take the greatest proportion of the referrals. It was observed that early administration of antivenom failed to prevent development of later sequelae and death. Some fatal systemic cases initially treated with 1-2 ampoules of ASV developed severe sequelae and died. Early ASV given in small divided doses is not helpful in preventing development of renal failure and complication is also observed [4]. Twenty out of 63 systemic envenomed cases still had incoagulable blood up to 8 days or up to the time of death indicating that neutralising efficacy of the procoagulant of the venom by the antivenom needs to be reviewed. Local injection of ASV around the site of bite is observed in one case indicating that continued medical education is needed. Since the old traditional methods of first aid are still widely practised, extensive effective health education is needed.

In the earlier study on renal involvement in

Russell's viper bite in YGH, acute renal failure is attributable to total nephron failure (a combination of glomerular, tubulointerstitial and vascular nephropathies) rather than due simply to acute tubular necrosis [5]. However, in the present study it could be due to a variety of causes of renal damage (pre renal or renal or both) with a mortality of 29% (59/206). Timely referral, geographical variation of venom and development of complications at the time of admission play an important role in determining the outcome of ARF. High fatality rate of referrals from Bago division (54%) (19/35) compared to Yangon division (42%) (28/66) could be attributed to high incidence of renal failure (21%) and venom variation [2].

Majority of cobra bite patients recovered with antivenom therapy and ventilatory support if they were referred in time. No specific antivenom is available for sea snakebite case and the patient died of multi organ failure despite supportive care. Sea snakebite could be saved if specific antivenom and dialysis could be provided. Unnecessary use of ASV was found in

unknown snakebite patients.

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