Oral Abstracts

5A-04

RECOVERY OF VENOM INDUCED CONSUMPTION COAGULOPATHY (VICC) IN RUSSELL'S VIPER (DABOIARUSSELII) ENVENOMING: DOES ANTIVENOM PLAY A ROLE?

Anjana Silva[1,2], Fiona E. Scorgie[4], Lisa F Lincz[4], Sisira Siribaddana[3],Geoffrey K Isbister[1,2]

[1]Monash Venom Group, Monash University, Victoria, Australia; [2]South Asian Clinical Toxicology Research Collaboration, University of Peradeniya, Sri Lanka, [3]Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka, Sri Lanka, [4]Haematology Research Group, Calvary Mater Newcastle, New South Wales, Australia.

Abstract: There remains controversy regarding the effectiveness of antivenom for venom induced consumption coagulopathy (VICC) in snake envenoming, with no placebo controlled trials. Observational studies suggest antivenom speeds recovery for *Echis* sp. but not Australian elapids. This study investigates the effect of Indian Polyvalent Antivenom on VICC in Sri Lankan Russell's viper envenoming.

Methods: From a cohort of 245 authenticated Russell's viper bite patients admitted to Teaching Hospital, Anuradhapura, Sri Lanka over 14 months, cases with detectable venom concentrations and serial coagulation studies were included. Time related changes in venom concentrations, prothrombin time (PT)/International normalized ratio (INR), activated partial thromboplastin time (aPTT) and fibrinogen in patients who received antivenom (AVG) versus those not receiving antivenom (NAVG) were compared. The decision to administer antivenom was made by the treating physicians, based on clinical features of envenoming and the whole blood clotting time (WBCT).

Results: There were 82 AVG [median age: 40 (range: 16-70); 61 males] and 16 NAVG [median age: 48 (range: 16-70); 11 males]. The AVG received the first dose of 20 vials antivenom a median of 3.5h (IQR, 2.5-4.5h) post-bite. AVG had significantly higher peak venom concentrations (median,150ng/ml; IQR:37-624ng/ml) compared to NAVG (median,16ng/ml; IQR:4.4-28ng/ml;$p<0.05$, *Mann-Whitney* test). The WBCT was prolonged in 69 (84%) of the AVG on day 1 compared to none in NAVG. Neurotoxicity developed in 63 (77%) of the AVG compared to none in NAVG. Administration of antivenom resulted in a rapid decrease in circulating venom concentrations in all AVG patients, with 73% having undetectable venom 24h post-bite. The maximum INR, aPTT and lowest fibrinogen were significantly higher in AVG compared to NAVG ($p<0.05$, *Mann-Whitney* test). Further, 35 (43%) of AVG developed complete VICC compared to none in NAVG.
There was a significant decrease in INR and aPTT and an increase in fibrinogen between 12-24h, and also 24-48h in AVG ($p<0.05$, *Wilcoxon test*). There was no significant change in the INR, aPTT and fibrinogen between 12h-24h, and 24h-48h in NAVG ($p>0.05$, paired t test). The median PT and fibrinogen normalized at 48h and median aPTT at 72h in AVG. At 48h, none of these parameters were normalized in NAVG.

Conclusion: Although more severe envenoming and VICC occurred in AVG, recovery of VICC was faster compared to NAVG, suggesting antivenom speeds recovery of VICC in Sri Lankan Russell's viper envenoming. However, bias associated with the low sample size in NAVG cannot be excluded.