INVITED SPEAKERS

Professor Anjana Silva, a Sri Lankan scientist, has been a prominent researcher in snakebite for 15 years. He graduated from the University of Peradeniya with an MBBS in 2007 and M.Phil in 2013, and obtained his PhD in toxinology from Monash University in 2017. Silva is currently the chair professor and head of the Department of Parasitology at Rajarata University. His research focuses on snakebite, combining experimental and clinical research to investigate the pathophysiology of snake envenoming and the efficacy and effectiveness of antivenom. He is also involved in community-based studies on developing preventive strategies for snakebites. In 2012, he initiated the Anuradhapura Snakebite Cohort, one of the largest snakebite cohorts in the world, recruiting over 6500 patients. This cohort has led to numerous completed and ongoing PhD and M.Phil projects, leading to over 30 publications. Silva has won numerous awards for his snakebite research, including the Young Investigator Award by EAPCCT in 2015, Outstanding Oral Presentation by NACCT in 2015, and Best Oral Presentation Award by APAMT in 2015 and 2018. He has published 78 peer-reviewed journal articles and has over 1600 citations.

A Decade of Antivenom Reactions in Rural Sri Lanka: Has Adrenaline Premedication Worked?

Although antivenoms are the only specific treatment for snake envenoming, their acute adverse reactions (AAR) cause significant challenges. AAR to Indian polyvalent antivenom has been a major problem in Sri Lanka. The effectiveness of low-dose subcutaneous adrenalin in preventing severe AAR of Indian polyvalent antivenom was proven by a randomised controlled trial published in 2011. Subsequently, the use of subcutaneous adrenalin premedication was increased. Has this practice brought down the AAR and anaphylaxis due to antivenom in rural Sri Lanka?

Anuradhapura Snakebite Cohort prospectively records clinical and epidemiological data of all confirmed snakebites admitted to Teaching Hospital, Anuradhapura, Sri Lanka, since 2013. Patient recruitment continued in 2013 and 2014 (phase I), then stopped in 2015 and 2016, but resumed in 2017 and continues to this date (phase II). There were 741 and 5710 patients in phases I and II of the cohort, respectively. Of them, 242 and 888 patients from groups I and II, respectively, received their first dose of antivenom at the study centre and hence were selected for analysis.

In Phase I, only 50/242 (21%) patients received subcutaneous adrenalin as premedication, while 753/888 (85%) received adrenalin in Phase II with the practice change. AAR and anaphylaxis following the first dose of antivenom occurred in 106/242 (44%) and 72/242 (30%) patients respectively in Phase I and 449/888 (51%) and 166/888 (19%) patients respectively in Phase II. Phases combined, 409/784 (52%) who received adrenalin premedication developed AAR. Phases combined, 167/784 (21%) who received adrenalin and 71/347 (20%) who did not receive adrenalin developed anaphylaxis; hence, subcutaneous adrenalin premedication did not reduce anaphylaxis (Fisher's exact test).

In phase I, 94%, and in phase II, 35% of patients received Vins Bioproducts antivenom (Vins), while the rest received Bharat Serums and Vaccines antivenom (Bharat). AAR occurred in 57% of patients (including 32% with anaphylaxis) who received Vins, and 43% (including 12% with anaphylaxis) received Bharat. There was a remarkable batch-wise variation in proportion of patients developing AAR (Vins 25 batches, median 62% patients, range 17-100%, interquartile range 39-80%; Bharat 22 batches, 38% patients, range 11-89%, interquartile range 0-78%) and anaphylaxis (median 32% patients, range 0-78%, interquartile range 20-50%; 12% patients, range 0-50%, interquartile range 6-20%), in both brands.

Despite subcutaneous adrenalin premedication, very high rates of antivenom-induced AAR and anaphylaxis still occur in rural Sri Lanka. Large batch-wise variations of the AAR and anaphylaxis urge careful monitoring for high reactogenic batches of antivenom.