Plenary Presentations

Plenary - 01

Snakebite associated acute kidney injury and can antivenom prevent it

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Snake envenoming is a major health issue in the rural tropics, particularly in South Asia. Coagulopathy and neurotoxicity are considered to be the major life-threatening complications of snake envenoming. Acute kidney injury (AKI) is now being recognized as just as an important consequence of snake envenoming. However, our understanding of snakebite associated AKI is limited and the effectiveness of antivenom is unclear. A number of different snakes have been identified as causing AKI, including Russell's viper (Daboia russelii), Echis spp. (Carpet viper, saw-scaled viper) and Australian elapids (Pseudonaja spp., Oxyuranus spp., Notechis spp.). The pathophysiology of AKI in snakebite is also poorly understood, and no primary nephrotoxins have been identified in snake venoms. The most common clinical pattern of AKI in snakebite is in association with venom induced consumption coagulopathy and microangiopathic haemolytic anaemia. It has also been reported in association with hypotension and rhabdomyolysis (myotoxicity). It remains difficult to predict which patients develop AKI and the severity of the clinical course of the effects. Such information is essential for improving treatments and, identifying which patients will benefit from specific treatments. Currently, the diagnosis of AKI relies on clinical signs of oliguria or anuria or in places where laboratory investigations are available, absolute or relative changes in serum creatinine (sCr). Other biomarkers have been found to be more sensitive in the early stages (<8h post-bite) of snakebite associated AKI. The two major treatments for AKI with snakebite are antivenom and renal supportive therapy – most commonly renal replacement therapy. There is no current evidence to support a role for antivenom, because the vast majority of patients with AKI will have already received antivenom for earlier complications, mainly coagulopathy. Potentially early administration of antivenom may prevent or reduce the severity of AKI, but clinical studies are required to confirm this.