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HAEMOPERFUSION IN SEVERE DENGUE WITH MULTIPLE ORGAN FAILURE

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Introduction: Dengue is the most common vector-borne disease transmitted by Aedes mosquitoes. The global burden of dengue is alarming as one study estimates that 390 million cases occur yearly, of which 96 million of these will manifest clinically. The multifaceted presentation of dengue viral infection can be challenging in terms of diagnosis and management. Patients with severe dengue might develop dengue haemorrhagic fever which is characterized by bleeding tendency and plasma leakage leading to shock and multiple organ failure. Studies have postulated that cytokine storms might play a role in the presentation of severe dengue.

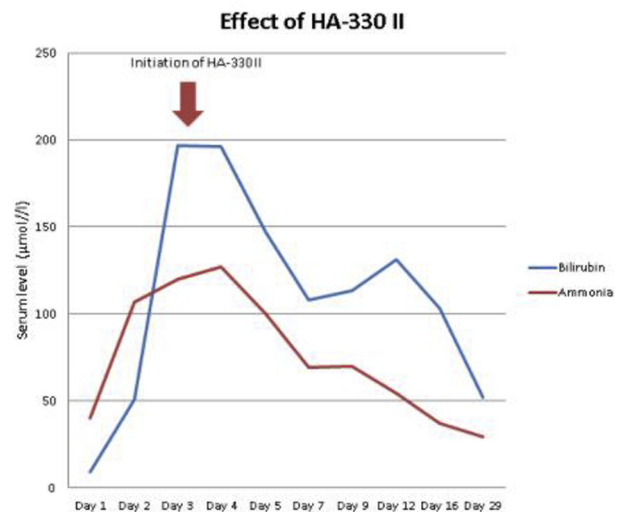
Methods: To date, there is no specific treatment for dengue fever other than symptomatic treatment. We would like to report our experience on using the combination of oXiris haemofilter and HA-330 II haemoperfusion cartridge in a young patient diagnosed with severe dengue complicated by acute kidney injury and hepatitis.

Results: A 12-year-old girl presented to our hospital with 5 days of fever, myalgia and vomiting. She was hypotensive with blood pressure of 85/39 mmHg and tachycardic on arrival. Examination revealed left pleural effusion, hepatomegaly and ascites. Dengue serology was positive and blood results showed transaminitis and severe metabolic acidosis. Despite aggressive fluid resuscitation, she deteriorated further requiring intubation and CVVH was initiated with oXiris haemofilter in the anticipation of cytokine storm (prescribed dose of 35 ml/kg/hour, pre:post filter ratio = 50%:50%). After almost 40 hours of CVVH, we noticed that her liver profiles deteriorated further with alanine aminotransferase (ALT) reaching 3465 U/L, aspartate aminotransferase (AST) 19965 U/L and bilirubin 196 µmol/l. Artificial liver support system (ALSS) was contemplated and we had decided to add on HA-330 II haemoperfusion (HP) cartridge on top of the ongoing CVVH. HP with HA-330 II (Jafron) was delivered for 6 hours in 3 consecutive days concurrently with CVVH. We had witnessed a tremendous improvement of the inflammatory markers and liver profile eventually.

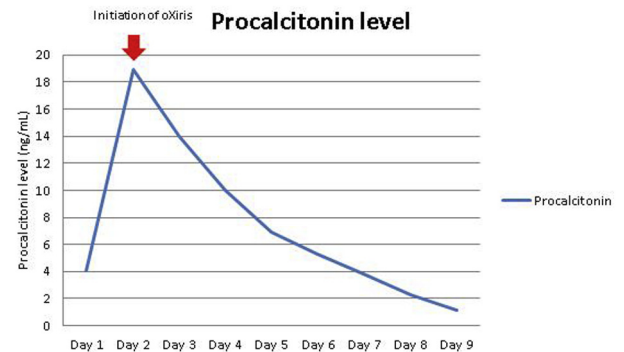


Figure 1. CVVH with oXiris Haemofilter with HA 330 II

Inotropic support was weaned down slowly and tapered off after the completion of CVVH. Her fluid overload percentage was high and we were able to extract more fluids during CVVH as she was hemodynamically stable. She was extubated eventually and had a good recovery of liver and kidney function.



Graph 1. Effect of Hemoperfusion on liver profile



Graph 2. Trend of procalcitonin level after oXiris-CVVH

Conclusions: According to a few retrospective cohort studies, the fatality rate of severe dengue is around 3.8% to 23.1%. The presence of metabolic acidosis with multiorgan failure is highly associated with mortality. The timely initiation of organ support is mandatory and adjunctive treatment to curb the cytokine storm with haemoperfusion might be a potential therapeutic option in managing life threatening dengue infection.

No conflict of interest

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KIDNEY IMPAIRMENT IN PATIENTS WITH MULTIDRUG-RESISTANT TUBERCULOSIS TREATED IN PNEUMOLOGY DEPARTMENT OF YALGADO OUÉDRAOGO UNIVERSITY HOSPITAL (BURKINA FASO)



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