

CORONARY ARTERY VASOSPASM AFTER ADMINISTRATION OF NOREPINEPHRINE IN DENGUE SHOCK

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INTRODUCTION

Dengue Shock Syndrome (DSS) is associated with high mortality and the role of inotropic and vasopressor agents is very important in the management. The role of this agents in dengue shock has not been investigated in clinical trials. Vasopressors may be able to maintain the blood pressure but do not improve tissue perfusion if the intravascular volume has not been restored.



CASE REPORT

A previously healthy 35-year-old woman presented with a three day history of fever, vomiting and headache. NS-1 antigen testing was positive and she was diagnosed as DSS. Despite 40 ml/kg fluid resuscitation, she remained hypotensive with a blood pressure of 80/50 mmHg and heart rate of 70 beat per minute. She was subsequently started on low dose, single strength intravenous norepinephrine infusion (IVI NE). After 10 minutes, she developed sudden onset of chest pain, dizziness and bradycardia with a heart rate of 30-40 bpm and blood pressure of 60/40 mmHg. Cardiac monitor showed junctional bradycardia. Subsequent ECG showed ST-elevation at AVR, STdepression in II, III, AVF, V2-V6. Her symptoms completely resolved with IV atropine 0.5mg and cessation of IVI NE. Repeated ECG showed normal sinus rhythm. Bedside ECHO revealed good heart contractility and troponin T test was normal. Similar episodes recurred even on a lower dose of IVI NE. IVI Dopamine was therefore commenced without any side effect or complications. Patient was then admitted to General Intensive Care Unit (GICU) for further stabilization. Since this was the first episode of coronary spasm which was never investigated before, she was referred to the cardiologist team for further evaluation and work up. She was discharged 5 days later and was given follow up to the Physician clinic 2 weeks later.

Shock is a life-threatening condition. Fluid administration is often insufficient to stabilize the patient's condition, thus the need for adrenergic agents to correct hypotension where NE is commonly used. Drug induced myocardial infarction in the majority of cases has been related with coronary artery spasm (CAS). CAS is a sudden tightening of the muscles within the arteries. It is important to be aware of the possibility that coronary vasospasm can occur in young patients with no known cardiovascular risk factors. IVI NE causes increased cardiac blood flow, a reflex bradycardia and also has the effect of vessels vasoconstriction that leads to narrowing of the arteries and prevent blood from flowing to the heart. Patients on vasopressors require continuous non-invasive hemodynamic monitoring such as blood pressure, pulse rate and oxygen saturation, to ensures rapid detection of changes in clinical status and allow for accurate assessment of progress and response to therapy.



Fig. 3. Inotropic agent and mode of action



Fig. 1. Electrocardiogram recorded during an episode of chest pain



CONCLUSION

Noraderenaline is the first-line agent recommended during resuscitation of shock but is not without adverse effects. Clinical usage of these drugs should have adequate resources available for dealing with such situations and professional staff should undergo training in their prevention and management in order to reduce subsequent patient mortlity rates



 Christopher B., Vladimír D, "Inotropes and Vasopressors, Review of Physiology and Clinical Use in Cardiovascular Disease" American Heart Association;118:1047-1056 (2008)

 Kawano H, Ogawa H. Endothelial dysfunction and coronary artery spasm. Curr Drug Targets Cardiovas Haematol Disord 2004;4:23-33.
CPG Management of Dengue infection In Adults (Third Edition), MOH, 7.7.2 Haemodynamic Support, 2015



Fig. 2. Electrocardiogram recorded after resolved chest pain

