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Letter to the Editor

Methamphetamine-associated reversible cardiomyopathy and stroke risk

Dear Editor,

A 33-year-old male presented to the Emergency Department with sudden onset of right sided body weakness and slurring of speech. He was a chronic smoker and indulged in methamphetamine for the past 5 years. Subsequently he was diagnosed to have hypertension and defaulted treatment. He had cardiac failure symptoms for a few months prior to the index event.

On examination, there were right facial drooping, receptive dysphasia, right hemiparesis with power 3/5, minimal bibasal crepitations and minor pedal edema. National Institutes of Health Stroke Scale was 4/42. Initial computed tomography (CT) brain was normal. Repeat CT brain showed hypodense infarction area at the left basal ganglia commensurating with left total anterior circulation infarction (TACI) syndrome. Echocardiography showed dilated chambers, moderate concentric hypertrophy of the left ventricle with severely impaired left ventricle function with spontaneous echo contrast seen, elevated right ventricular systolic pressure (RVSP) with mild tricuspid regurgitation (TR) and no intracardiac thrombus. His renal function was deranged with creatinine 273 μmol/L. He was treated with aspirin, statin, amlodipine, carvedilol and prazosin. He underwent physiotherapy and stopped methamphetamine consumption. His renal function improved. Ultrasound showed bilateral renal early parenchymal disease. He made good neurological recovery and resumed work with New York Heart Association functional class I after 6 months. His blood pressure was well controlled. Echocardiography showed normalization of his left ventricular function during his 1 year clinic follow-up. Methamphetamine also called ice, crystal meth, ecstasy or syahbu is a common illicit stimulant drug which can be taken orally, intravenously, snorted or smoked. It creates a pleasurable state of euphoria and hyperactiveness, rendering it highly addictive. The short term effects are tachycardia, elevated blood pressure, increase libido, anxiety, cognitive, behavioural and psychiatric change. Overdose of methamphetamine can be an acute emergency presentation of acute delirium, hyperthermia, arrhythmias and rhabdomyolysis. Chronic abuse of methamphetamine can lead to cardiomyopathy[1], pulmonary hypertension[2], renal impairment[1], scarred facies, premature aging and sudden death.

Methamphetamine induced cardiotoxicity has been proven at the microscopic level causing myocardial scarring, infarction and concentric myocardial hypertrophy probably from long standing hypertension[3]. The ensuing cardiomyopathy is correlated echocardiographically with bigger cardiac chamber dimension, volume and severely impaired ventricular function[4]. The low flow and spontaneous echo contrast findings in this patient is pathognomonic of poor ventricular function and confers higher risk of stroke and cardiovascular events. The patient refused oral anticoagulation and he was just treated with aspirin for stroke prevention. Heart dilatation and TR may cause the RVSP to be elevated but it can also be an indirect sign of pulmonary hypertension as a probable consequence of methamphetamine induced pulmonary damage[2]. Cardiac magnetic resonance imaging (CMR) can be used to detect fibrosis and scarring by late gadolinium enhancement. The lack of scarring predicts recovery for methamphetamine associated cardiomyopathy[5]. As he had impaired renal function, CMR could not be performed in this patient. This case aptly illustrated methamphetamine associated cardiomyopathy and its stroke risk. Perhaps short term anticoagulation should be contemplated until the heart function recovers. Cessation of use is proven to be related to cardiac recovery.

Conflict of Interest

The Authors declare that they have no conflict of interests.

Corresponding Author: Kuan Leong Yew, MD; e-mail: yewkuanleong@yahoo.com

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K.L. Yew, C.S. Go, F. Razali, P. Rajendran, P.S. Ooi, A. Anum
Sarawak General Hospital Heart Center, Kota Samarahan, Sarawak, Malaysia