

Successful thrombolysis in an asymptomatic patient with left ventricular assist device thrombosis

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Introduction: Advanced heart failure is a devastating condition with mortality resembling those of the malignancies with the highest mortality. Nowadays, there is a growing employment of a left ventricular assist devices in the management of this lethal condition.^{1,2} We present a case of a patient with device malfunction (power spike, high flow alarms) successfully treated with early thrombolysis which led to fast recovery of the device function.

Case report: 55-year old man with a history of ischemic cardiomyopathy presented with advanced heart failure in June 2016. He was diagnosed with biventricular cardiomyopathy with irreversible PVR, so we decided to implant a left ventricular assist device as a destination therapy. Our patient received a HeartWare System, Framingham, MA, USA, LVAD in July 2016. In January 2017, he presented to our Department with high flow alarms and Power spikes. At presentation, he was hemodynamically stable. Device settings had a pump flow rate of 9 liters/min and the power consumption was 4.0 watts at pumps speed of 2200 rpm. Turning the pump speed to 2400 and 2600 rpm made power consumption turn to 4.5 watts and flow rate to more than 10 liters/min suggesting the inability of the device to unload the left ventricle. Patient was, at the moment, asymptomatic but had laboratory signs of hemolysis suggesting thrombosis. File log analysis was indicative of thrombus formation, so our Heart Team decided to start thrombolytic therapy. The first step was to decrease INR below 2. We used fresh frozen plasma (250 ml) to reduce INR for 0.5 points. The next step was to use 10 mg of alteplase as a single shot. We repeated the same dose after 10 minutes because no changes in pump indices were noted. Then we continued infusion with a rate of 0.1 mg/kgBW/h for 5 hours to a total dose of 50 mg of alteplase. The result was normalization of all of the pump indices within this period. The pump hemodynamics showed a stable pump flow rate of 3.4 l/min with the power of 2.5 Watts.

Conclusion: Left ventricular assist device thrombosis is a devastating condition that urges for immediate response. Despite having a risk of hemorrhagic complications, parenteral thrombolytic therapy can be used as a treatment with fast response and good results in clinically stable patients presenting with early stage of thrombus formation.

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LITERATURE

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