

ACT FAST! MECHANICAL THROMBECTOMY IN CHILDREN ON VENTRICULAR ASSIST DEVICES

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Background: The use of ventricular assist devices (VAD) in children can be life-saving, but there is a risk of hemorrhagic and thromboembolic stroke. Data regarding mechanical thrombectomy (MTE) in pediatric VAD patients are scarce. We describe 3 children with dilated cardiomyopathy on a continuous flow device LVAD who had an acute thromboembolic stroke successfully treated with MTE. All were successfully bridged to heart transplant. Neurologic clinical impact was measured using the National Institutes of Health Stroke Scale (NIHSS).

Materials/Methods: Case series.

Results: Case 1: A 12-year-old female presented 17 months after LVAD implant with acute onset of left (L) hemiparesis, NIHSS 8. CTA showed partially occlusive thrombus of the M2 segment of the right middle cerebral artery (RMCA). MTE was done 16 hours after symptom onset, NIHSS post MTE 4. Plasma was given in the first 48 hours for rising INR. Aspirin was restarted on day 2 and bivalirudin on day 3 post MTE. Case 2: An 8-year-old female presented five months after LVAD implant with acute onset of L hemiparesis and dysarthria, NIHSS 13. CTA showed occlusive thrombus of M1 segment of the RMCA. MTE was done 2.5 hours after symptom onset, NIHSS post MTE 3. Heparin was started two days after, but held due to small subarachnoid hemorrhage (SAH) on day 4, and restarted day 6 with transition to warfarin (day 10) and aspirin (day 19). Case 3: A 9-year-old male presented two months after LVAD implant with acute onset of R hemiparesis, altered mental status, and aphasia, NIHSS 23. CTA showed occlusion of M1 segment of the LMCA. MTE was done 4.5 hours after symptom onset, NIHSS post MTE 7. Heparin was started on day 2 post MTE with transition to warfarin (day 5) and aspirin (day 17). He presented four weeks after his initial stroke with worsening R arm weakness and had small areas of intracranial hemorrhage (ICH). An elevated INR of 5 was reversed without progression of neurologic symptoms.

Conclusions: Mechanical thrombectomy for acute thromboembolic stroke in pediatric VAD patients can result in improved neurologic outcomes when employed early and with careful reintroduction of anticoagulation.