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Stroke in Patients With a Left Ventricular Assist Device: One Institution's Experience.

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AIM: We sought to report the incidence, characteristics, and impact of ischemic stroke in patients with a left ventricular assist device (LVAD) at our center.

BACKGROUND: LVADs are usually implanted as a bridge to transplantation in patients with severe cardiomyopathy. Ischemic stroke and transient ischemic attacks (TIA) from thromboembolism are common complications, with reported rates as low as 2% and as high as 57%. However, there is little published data on the characteristics of ischemic events and their impact on progression to transplantation.

METHODS: We retrospectively analyzed a database of 163 patients with LVADs implanted between 2003 and 2009. Several types of devices were used. For each ischemic event, we reviewed anticoagulation status, computed tomography (CT) findings, and immediate outcome. We used image processing software to calculate final infarct volume. Ischemic events resulting from LVAD dysfunction, cardiopulmonary failure, or septic shock were excluded.

RESULTS: Of 163 patients, 37 (23%) had one or more ischemic events. There were 39 infarcts and 14 TIAs. Seventy-three percent of ischemic events occurred in the setting of inadequate anticoagulation according to LVAD manufacturer guidelines. Incidence of infarcts was the same in the anterior and posterior circulations. Nine of 29 of patients with infarcts received a transplant, including 2 with large (>70 cc) infarcts. One of these patients qualified for acute stroke therapy, was successfully revascularized with endovascular treatment, and was immediately transplanted the next day. Having an infarct led to inactivation or withdrawal from the transplant list in 2 patients, and withdrawal of care in 7 patients. The remaining 11 patients were not transplanted because of death or ineligibility related to other medical issues.

CONCLUSION: In our experience, most patients with LVADs are not adversely affected by ischemic stroke. Inadequate anticoagulation appears to be a significant contributing factor. Prospective studies are needed to validate our findings.

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