Cerebral Protection During MitraClip Implantation: Initial Experience at 2 Centers.

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Abstract

OBJECTIVES: This study sought to assess the feasibility and safety of using a filter-based cerebral protection system (CPS) during MitraClip implantation and to report on the histopathologic analysis of the captured debris.

BACKGROUND: Stroke is one of the serious adverse events associated with MitraClip therapy.

METHODS: Between July 2014 and March 2015, 14 surgical high-risk patients (age 75 ± 7 years; 7 men; median logistic EuroSCORE 21%) underwent MitraClip implantation employing cerebral protection with a dual embolic filter system. All patients had severe mitral regurgitation of predominantly functional origin.

RESULTS: All procedures were successfully completed for both CPS deployment/retrieval and MitraClip implantation. A total of 28 filters (2 from each patient) were analyzed. Microscopically, debris was identified in all 14 patients. The most common tissue types were acute thrombus and small fragments of foreign material, which were found in 12 patients (85.7%) each. Organizing thrombus was present in 4 patients (28.6%), valve tissue and/or superficial atrial wall tissue in 9 patients (64.3%), and fragments of myocardium in 2 patients (14.3%). No transient ischemic attacks, strokes, or deaths occurred peri-procedurally or during a median follow-up interval of 8.4 months.

CONCLUSIONS: In this small study of patients undergoing MitraClip treatment with cerebral protection, embolic debris potentially conducive to cerebrovascular events was found in all patients. Debris was composed most often of acute thrombus, foreign material likely originating from the hydrophilic device coating, and valve/atrial wall tissue. Further studies are warranted to assess the impact of cerebral protection on the incidence of cerebrovascular events after MitraClip therapy.

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