Global surgical experience with the Acorn cardiac support device


Objective
Surgical intervention is an option for treating the remodeled and dilated left ventricles of patients with heart failure. Providing end-diastolic support with an innovative mesh-like cardiac support device reduces mechanical stress, improves function, and reverses cardiac remodeling in animal models without safety issues. The objective of this study was to review the global clinical safety and feasibility experience of this device.

Methods
The Acorn CorCap cardiac support device (Acorn Cardiovascular, Inc, St Paul, Minn) has been implanted worldwide in more than 130 patients with dilated cardiomyopathy with or without concomitant cardiac surgery. The device is positioned around the ventricles and given a custom fit. A series of 48 patients were implanted with the device in initial safety and feasibility studies, of whom 33 also received concomitant cardiac surgery.

Results
At implantation, 11 patients were in New York Heart Association class II, 33 were in class III, and 4 were in class IV. The average CorCap implantation time was 27 minutes. The mean intraoperative reduction in left ventricular end-diastolic dimension was 4.6% ± 1%. There were no device-related intraoperative complications. Eight early and 9 late deaths occurred during follow-up extending to 24 months. Actuarial survival was 37% at 12 months and 68% at 24 months. There were no device-related adverse events or evidence of constrictive disease, and coronary artery flow reserve was maintained. Ventricular chamber dimensions decreased, whereas ejection fraction and New York Heart Association class were improved in patients overall and in those patients implanted with the CorCap device without concomitant operations.

Conclusion
The CorCap device appears safe for patients with dilated cardiomyopathy. Randomized clinical trials are underway in Europe, Australia, and North America.

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