

First Results of a Dutch Cohort of Patients Undergoing Personalized External Aortic Root Support

OBJECTIVE:

Patients with connective tissue disease with aortic root aneurysm are at risk of dissection and progression of the dilatation. Standard treatment is either a total root replacement or a valve-sparing root replacement. Both procedures have drawbacks such as the need for anticoagulation and complications of the aortic valve. Personalized External Aortic Root Support has been introduced to reduce these risks with similar beneficial outcome. Our purpose is to evaluate the safety and efficacy in the first patients undergoing Personalized External Aortic Root Support in the Netherlands.

METHODS:

From January 2018 to September 2022, a total of 76 patients underwent either an isolated Personalized External Aortic Root Support procedure or Personalized External Aortic Root Support with concomitant valve- and/or rhythm surgery or a combined Ross and Personalized External Aortic Root Support procedure in two centres. Isolated Personalized External Aortic Root Support was generally performed off-pump under controlled hypotension. Patient characteristics, preoperative and postoperative echocardiography and computed tomography or magnetic resonance imaging were assessed.

RESULTS:

Median age was 34 (SD±15) years and 51 (67%) patients were male. Among all patients 36 (48%) had Marfan syndrome, 10 (13%) Loeys-Dietz syndrome and 18 (24%) had a bicuspid aortic valve. Fifty three (70%) patients underwent isolated Personalized External Aortic Root Support, 17 (22%) a Ross-Personalized External Aortic Root Support and 6 (8%) patients underwent Personalized External Aortic Root Support with concomitant surgery. Mean sinus of Valsalva diameter prior to surgery was 45.1 mm (SD±5.1). All but one patient had a successful placement of root support. Three patients (in the isolated Personalized External Aortic Root Support group) were converted to cardiopulmonary bypass. Two Ross-Personalized External Aortic Root Support patients needed reoperation due to Personalized External Aortic Root Support-related issues in the follow-up period. No death, aortic dissection, endocarditis or thrombo-embolic complications occurred in 32 postoperative patient years of follow-up. At follow-up all aortic diameters were stable or even reduced (median 39.5 (IQR 36-42)).

CONCLUSIONS:

Personalized External Aortic Root Support has promising in-hospital and early follow-up results in selected patients. Longer follow up is needed to assess the incidence of late aortic complica-

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