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Activity: Abstract

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Initial Experience With The New Supra-annular Pericardial Aortic Bioprosthesis Dokimos: An Echocardiographic Study

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Abstract:

Background: Supra-annular pericardial aortic prosthesis are gaining more popularity due to low gradients and increased effective orifice areas. In this study, we report our initial experiences with the new pericardial aortic prosthesis Dokimos (Labcor, Belo Horizonte, Brazil).

Methods: Between June and September 2014, a total of 47 patients (42% male) with a mean age of 72.7 years underwent supra-annular aortic valve replacement (AVR) for degenerative aortic valve stenosis with or without concomitant procedures using the Dokimos valve. Patients were assigned to subgroups regarding the valve size they received. Transthoracic echocardiography was performed prior to surgery and to discharge measuring peak and mean pressure gradients, acceleration-time (AT), aortic valve area calculated by the continuity equation and effective orifice area indices (EOAI). Data was collected retrospectively from hospital databases.

Results: All patients survived surgery without any major complications. Postoperative echocardiographic measurements are indicated in table 1. The majority of patients receiving 21 mm valves were female (total n=18, female: 83 %) where males exclusively received 27 mm valves (total n=5). EOAI was well above 0.8 cm²/m² BSA in all groups. Pressure gradients were accordingly low in all groups.

Conclusion: The Dokimos aortic bioprosthesis showed a promising overall performance, presenting low gradients as well as high EOAI. The measured values are comparable to other supraannular pericardial prosthesis.

Preoperative Data

Valve size	Sex (0=male, 1=female)	Mean Age (years)	Weight (kg)	Height (m)	Body Surface Area (m ²)	Preoperative Ejection fraction (%)
21 mm (n=18)	0,83±0,38	75,61±7,87	66,94±10,82	1,63±0,07	1,74±0,17	55,98±16,59
23 mm (n=17)	0,41±0,51	74,18±6,49	78,55±14,68	1,69±0,07	1,91±0,21	56,88±5,49
25 mm (n=9)	0,11±0,33	72,11±7,85	87,78±10,79	1,74±0,05	2,05±0,13	58,33±2,83
27 mm (n=5)	0±0	68±3,16	93±31,06	1,8±0,04	2,13±0,33	57±11,45

Postoperative echocardiographic data

Valve size	Postoperative Ejection fraction (%)	Peak Pressure Gradient (mmHg)	Mean pressure Gradient (mmHg)	Acceleration Time (ms)	Aortic Valve Area by continuity equation (cm ²)	Effective Orifice Area Index (cm ² /m ² BSA)
21 mm (n=18)	55,22±6,98	22,44±9,48	11,6±5,5	74,72±14,46	1,39±0,31	0,81±0,23
23 mm	53,47±4,81	19,76±5,36	10,8±2,9	78,71±10,05	1,53±0,47	0,82±0,36

(n=17)						
25 mm (n=9)	51,28±20,23	18±4,82	9,6±2,3	78,22±11,57	1,78±0,46	0,87±0,25
27 mm (n=5)	53±10,86	19,6±5,94	10,2±5,0	81,6±13,13	1,88±0,35	0,88±0,08

Author Disclosure Information: N. Hatam, None..

A. Goetzenich, None..

J. Arias, None..

R. Autschbach, None.

Topic (Complete): Heart Valve Outcomes

ACCME Practice Gaps Requirement (Complete):

1. What professional practice gap does this abstract address?

(A practice gap is the difference between actual and ideal performance and may include the difference between actual and ideal patient outcomes.)

: This abstract addresses hemodynamic performance by echocardiography of a new supra-annular pericardial aortic bioprosthesis which have not yet been published

2. How will this abstract influence change in competence, performance or patient outcomes?

: Pericardial aortic bioprosthesis by other manufacturers are somewhat sensitive to mechanical stress during implantation. The described model in this abstract is very easy to implant in a very short time. Overall it shows very good hemodynamic performance, especially with small valve sizes

Presentation Preference (Complete): Oral Presentation

Status: Complete

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