

C53. Evaluation Of A New Transcatheter Aortic Prosthesis - the Ventor Valve

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OBJECTIVES: Transcatheter aortic valve implantation is currently being performed with first generation prosthetic valves. We performed initial experimental evaluation of a newly developed transapical prosthesis allowing for rotational control of the valve within the aortic annulus.

METHODS: A transcatheter aortic valve pericardial xenograft fixed in a nitinol stent (Ventor Inc., Tel Aviv, Israel) was used. The proprietary stent design consists of a special fixation technique within the native stenosed aortic valve cusps using supra- and subvalvular arms and a subvalvular cone. Implantations were performed using an acute animal model with six pigs (mean body weight 42.7±6.3kg). A pigtail catheter was inserted through a femoral arterial sheath and placed in the aortic root. Transoesophageal echocardiography was used to measure the aortic annulus diameter (19.5±0.8mm, range 18.5-21) and to perform hemodynamic assessment after valve implantation. All implantations were performed in a hybrid experimental operative theatre under fluoroscopic control.

RESULTS: All valves were implanted successfully. Two animals were hemodynamically compromised requiring immediate valve implantation. After implantation invasively measured maximal transvalvular gradients were 8.5±4.5mmHg. There were no paravalvular leaks in any of the implants, neither at angiographic nor at echocardiographic control. Hemodynamic function was good in all animals without any coronary compromise as proven by pathologic examination.

CONCLUSIONS: The newly designed transcatheter aortic valve was relatively easy and safely to implant and provided good hemodynamic function in the acute experimental model. The valve design allows for exact anatomical orientation of the implanted prosthesis by anatomically aligning the commissures. These results are promising for further clinical evaluation.

Ventor valve

