

# ECHOCARDIOGRAPHIC ASSESSMENT OF VALVE PARAMETERS AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI) IN LONG TERM OBSERVATION

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**Objective.** Echocardiography is one of the most important instruments used for qualification and monitoring of high risk, mostly symptomatic patients with severe aortic stenosis (AS) qualified for transcatheter valve implantation (TAVI). We aimed at exploring the 12 months echocardiography results of TAVI procedures performed in end-stage elderly patients.

**Method.** Between november 2008 and december 2011 in Silesian Center For Heart Diseases were succesfully implanted 44 transcatheter aortic valves ( Edwards SAPIEN, Core Valve) through transapical, transfemoral (TF) or subclavian artery approach (TSC). In patients with native annulus 20–21mm we used 23mm Edwards SAPIEN or 26mm (Core Valve). In patients with annulus larger than 21mm – Edwards 26 and 29 Core Valve for annuluses larger than 23mm (TF,TSC)

**Results.** Mean gradient decreased in all group of TAVI patients from  $63 \pm 22$  to  $13 \text{ mmHg}$  ( $p=0,0001$ ), EOA increased from mean  $0,72 \pm 0,32$  to  $1,45 \text{ cm}^2$ , ( $p<0,05$ ), TTE and TEE echocardiography have shown the trivial perivalvular leakage in 16 and small to moderate in 4 patients. After valve implantation mean prosthesis annulus relaxation using the 23 and 26mm – 29mm prostheses were 20,1 and 23,8mm measured in long axis view of echo 2D. Valve prosthesis–patient mismatch (PPM) is a term introduced by Rahimtoola in 1978 to describe a condition in which the in vivo prosthetic valve effective orifice area is smaller than that of the native valve. PPM is defined as “severe” when the prosthetic aortic valve effective orifice area index was  $<0.65 \text{ cm}^2/\text{m}^2$ , as “moderate” when the area ranged from  $0.65$  to  $0.85 \text{ cm}^2/\text{m}^2$ , and “normal” when it was  $>0.85 \text{ cm}^2/\text{m}^2$

**Conclusions.** Our echocardiography data has shown that despite of evident improvement of mean effective orifice area (EOA) and significant decreased of transvalvular gradient, implanted valves expanded only to preoperatively measured annular diameter, what may result in moderate patient prosthesis mismatch ( $0,85\text{--}0,60 \text{ cm}^2/\text{m}^2$ ). This could influence on left ventricular function, mass reduction and slower improvement of patient’s condition in the future. However, this hypothesis needs further clarifications in 2 years observation.