Results of Comprehensive Cognitive Function Assessment in Elderly Patients Undergoing Transcatheter Aortic Valve Implantation

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Background:
Transcatheter aortic valve implantation **(**TAVI) has emerged as an alternative to surgery in high risk patients with severe aortic stenosis (AS). However this procedure is occasionally associated with strokes and silent cerebral ischemia which may affect cognitive and functional performances. Conversely, it is suggested that improved systemic perfusion following TAVI may improve patient's cognitive function.

Aim:
To evaluate whether there are changes in cognitive performances and functional status following TAVI procedures.

Methods:
We performed a comprehensive functional and cognitive evaluation in 44 patients who underwent TAVI using the CoreValve device ((Medtronic Inc)) in our institute**.** The evaluation was performed at baseline and one month after the procedure and included short form 36 health survey (SF-36) for quality of life assessment, Mini-Mental status examination (MMSE), Quantitative clock drawing test (Rouleau), color trail test (CTT1 and CTT2), Cognistat evaluation, Barthel index scoring and Duke Activity Status Index (DASI). All tests were performed by an occupational therapist that specializes in cognitive function assessment.

Results:
A total of 36 patients completed the full pre and post evaluation. Mean age was 83±4.1 years (54.5% men), 88.6% of patients had NYHA grade III/IV and 13.6% had prior stroke. All patients have improved NYHA class (I/II) and valve hemodynamics at discharge and during one-month of follow up. Evaluation results showed numerical improvements in all parameters from baseline to one month with a significant improvement in the Mini-Mental status and Cognistate evaluation (25.9±3.3 to 27.6±2.4, p=0.01, 5±1 to 5.7±0.7 p=0.001 respectively). The physical functioning scale significantly improved as well 41.0±25.4 to 47.8±26.2, p=0.05).

Conclusions:
Our preliminary results indicate that early after TAVI there is a strong tendency towards improvement in both functional and cognitive function of treated patients.