Abstract: P1574

Variation in myocardial work performance after surgical and transcather aortic valve replacement: A pilot echocardiographic study

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Topic(s):
Imaging: Valve Disease

Citation:

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Objective:
Perioperative myocardial injury occurs after surgical aortic valve replacement (SAVR) as well as after transcather aortic valve replacement (TAVR). The novel non-invasive method for regional LV pressure– strain corresponds well with invasively measured myocardial work (MW) and is independent of afterload compared to ejection fraction and global longitudinal strain (GLS) . In this pilot study, we aimed to compare changes of LV-MW index (MWI) between SAVR and TAVR in the early postoperative period.

Methods:
25 TAVR (Corevalve & Symetis) and 25 SAVR (Perimount) patients, scheduled for elective procedures received transthoracic echocardiography studies pre- and 7 days postoperatively. Besides routine measurements the following parameters were analyzed: MWI, global MW efficiency (MWE), global wasted myocardial work (GWMW), GLS and global strain rate (GSR).

Results:
In the TAVR group, 17 patients received transfemoral, 8 patients transapical TAVR. As expected, EuroSCORE II was significantly higher in the TAVR group (p=0.015). GLS was significantly lower (better) in the SAVR group compared to the TAVR group preoperatively (-13.4±4.9 vs. -16.7±4.2, p=0.027). Postoperative GLS increased (worsened) in the SAVR group, though no significant difference was detected between the groups (-12.7±5.1% vs. -10.4±3.4%, p=0.215) postoperatively. MWI was significantly lower in the TAVR group preoperatively (p=0.033). Within the TAVR group MWI did not decrease significantly postoperatively (1242 mmHg% vs. 1108 mmHg%, p=0.476). However, postoperative MWI decreased significantly in the SAVR group (1632 mmHg% vs. 1267mmHg%, p=0.043). MWE and GWMW did not differ between the groups or within the groups comparing pre- and postoperative values.

Conclusion:
Despite better GLS values in SAVR patients preoperatively, we could detect a better preservation of GMWI in TAVR Patients postoperatively. To evaluate the clinical impact of MWI, further studies with larger cohort and correlation with biomarkers of myocardial injury and follow-up assessments are required.
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