

Smanjenje mase lijeve klijetke i globalne longitudinalne deformacije u bolesnika s teškom aortnom stenozom tri mjeseca nakon zamjene aortne valvule

Reversal of left ventricular mass and global longitudinal strain in patients with severe aortic valve stenosis at three-month follow-up after aortic valve surgery replacement

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Uvod: Aortna stenoz (AS) praćena je progresivnom hipertrofijom i fibrozom lijeve klijetke (LK).¹ Ova studija nastojala je istražiti intenzitet potencijalnih promjena globalne longitudinalne deformacije i mase te dijastoličke funkcije LK u bolesnika tri mjeseca nakon zamjene aortne valvule (AVR).

Bolesnici i metode: U ehokardiografsku studiju uključeno je ukupno 47 bolesnika (70,32 ± 7,59 godina, 53,2% žena) s teškom simptomatskom AS. U 41 bolesnika (87,23%) implantirane su bioproteze, a u 6 bolesnika (12,77%) mehaničke proteze. Ehokardiografska procjena ponovljena je tri mjeseca nakon AVR-a.

Rezultati: Tri mjeseca nakon operacije indeksirana masa LK smanjila se za 10,85% (180,91 ± 43,96 g/m² do 169,18 ± 38,15 g/m², p < 0,001). Ova promjena, međutim, nije bila popraćena smanjenjem indeksiranog end-dijastoličkog volumena (57,74 ± 16,78 ml/m² do 61,45 ± 17,34 ml/m²) i indeksiranog end-sistoličkog volumena (25,42 ± 11,09 ml/m² do 27,05 ± 12,25 ml/m², p=0,294). Također, ejekcijska frakcija lijeve klijetke (LVEF) se nije značajno promijenila (p=0,66). Ipak, debljina stijenke interventrikulskog septuma (p<0,001), debljina stražnje stijenke (PWT) (p=0,001) i relativna (RWT) debljina stijenke (p=0,032) značajno su smanjene. Prosječna globalna longitudinalna deformacija (GLS, -15,86 ± 4,25 do -17,16 ± 3,42, p=0,008) i deformacija izmjerena u prikazu iz dvije šupljine (2 ch, -15,13 ± 5,19 do -16,66 ± 3,87, p=0,013) također su značajno smanjene, dok se deformacije izmjerene u PLAX-u (-16,83 ± 4,92 do -17,92 ± 4,12, p=0,128) i prikazu iz četiri šupljine nisu statistički značajno promijenile. Nije zabilježeno statistički značajno poboljšanje dijastoličke funkcije LK.

Zaključak: Tri mjeseca nakon AVR u bolesnika je verificirano značajno poboljšanje sistoličke funkcije lijeve klijetke mjereno GLS-om, ali ne i poboljšanje LVEF-a. Također je zabilježen i pozitivni trend reverzne remodelacije potvrđen smanjenjem mase LK. Nije uočeno poboljšanje dijastoličke funkcije lijeve klijetke.

Objectives: Aortic stenosis is accompanied by progressive left ventricular hypertrophy and fibrosis.¹ This study sought to investigate the intensity of potential reversal changes in left ventricular (LV) mass and global longitudinal strain at 3 months follow up after aortic valve replacement surgery.

Patients and Methods: A total of 47 patients (age 70.32 ± 7.59 years; 53.2% female) with severe, symptomatic AS were assessed pre-aortic valve replacement (AVR) by echocardiography. Bioprostheses were implanted in 41 patients (87.23%), and the 6 remaining patients (12.77%) received mechanical prostheses. Assessment was repeated at three months post-AVR.

Results: At three months post-operatively the mean valve gradient had improved (52.05±13.38 mmHg to 13.05±4.36 mmHg, p<0.001), and indexed LV mass had regressed by 10.85% (180.91±43.96 g/m² to 169.18±38.15 g/m²; p<0.001). However, at three months post-AVR, these changes were not accompanied by reduction in LV end-diastolic volume index (57.74±16.78 ml/m² to 61.45±17.34 ml/m²) and LV end-systolic volume index (25.42±11.09 ml/m² to 27.05±12.25 ml/m²; P=0.294). Also, left ventricular ejection fraction (LVEF) did not improve (P=0.66). Nevertheless, septal thickness (P<0.001), posterior (PWT) wall thickness (P=0.001), and relative (RWT) wall thickness (P=0.032) were significantly reduced at follow-up. In addition, average global longitudinal strain (GLS; -15.86±4.25 to -17.16±3.42; P=0.008) and strain measured in two chamber view (2ch; -15.13±5.19 to -16.66±3.87; P=0.013) were also significantly improved while the strain measured in PLAX (-16.83±4.92 to -17.92±4.12; P=0.128) and in four-chamber view (4ch; -15.48±4.64 to -19.06±16.72; P=0.128) showed statistically insignificant improvement at 3 months follow up. There was no statistically significant improvement in diastolic function of LV.

Conclusions: Three months post-AVR patients showed significant improvement in LV systolic function measured by GLS but not LVEF as well as improvement in reverse remodeling depicted by regression in LV mass. We did not see improvement in LV diastolic function.

LITERATURE

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