

1 **Reverse Left Ventricular Remodeling After Aortic Valve Replacement**

2 **For Severe Aortic Insufficiency**

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18 **Meeting presentation:**

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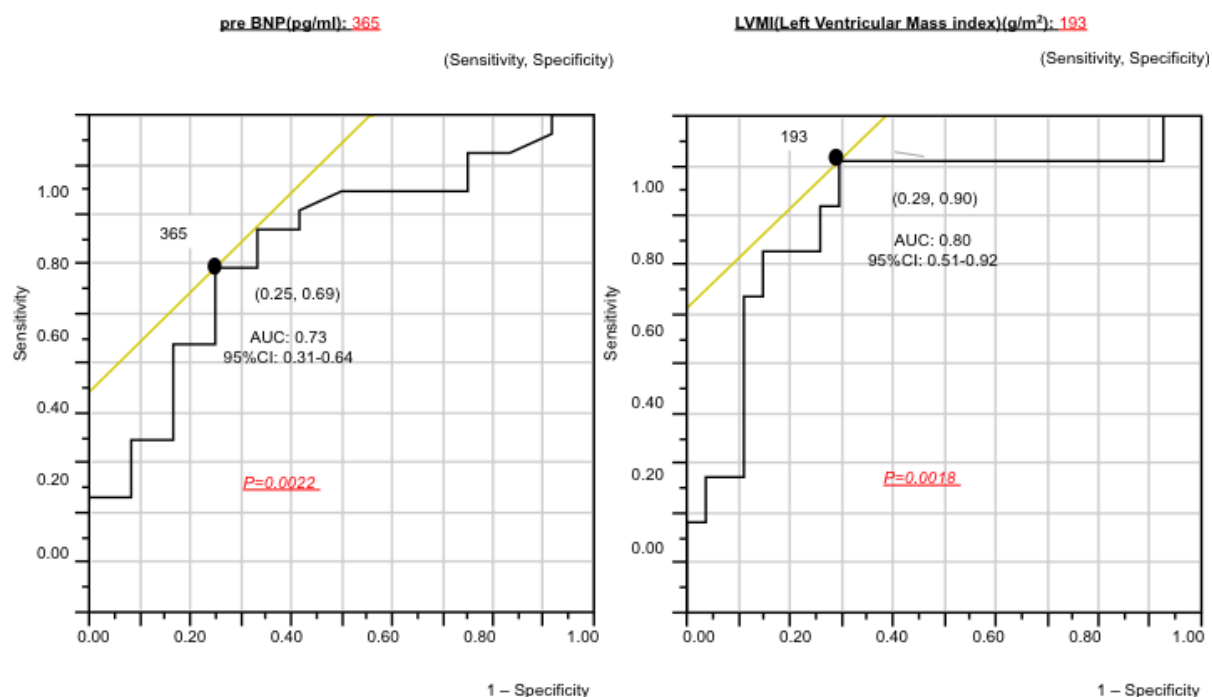
21 **Word count: 5616**

22 **VISUAL ABSTRACT**

- 23• Key question (120 characters including spaces)
- 24• Relationship between functional recovery and prognosis after AVR for AI and, what are the predictors
- 25 of poor prognosis?
- 26• Key findings (120 characters including spaces)
- 27• Predictive factors of failure in the functional recovery post-AVR for AI included preBNP >364 pg/mL,
- 28 or LVMI 192> g/m².
- 29• Take-home message (140 characters including spaces)
- 30 Comparison of AVR to optimized treatment such as TAVI might be warranted for cases with
- 31 irreversible poor LV function.

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33 **CENTRAL IMAGE**



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36 **ABSTRACT**

37 **Objectives:** This study aimed to review the long-term outcome of aortic valve replacement (AVR) for
38 severe aortic insufficiency (AI) with a focus on pre- and postoperative left ventricular (LV) function
39 to explore predictive factors that influence the recovery of LV function and clinical outcome.

40 **Methods:** In this study, 478 patients who underwent AVR for pure severe AI were grouped according
41 to the preoperative echocardiographical LV ejection fraction (EF), such as Low (LO) EF <35% (n=43),
42 moderate (MED) EF 35%-50% (n=150), or normal (NI) EF >50% (n=285) groups.

43 **Results:** Actuarial survival at 10 years post-AVR was 64% in the LO EF, 92% in the MED EF, and
44 93% in the NI EF groups (P=0.016), while 10-year freedom from major adverse cerebral and
45 cardiovascular events (MACCE) was 47%, 79%, and 84% individually (P<0.0001).

46 Echocardiography at 1 year post-AVR revealed that EF substantially improved in all groups. There
47 was a significant difference in the survival (P=0.0086) and freedom from MACCE (P=0.024) between
48 patients with EF \geq 35% and those with EF <35% in the LO EF group. Multivariate linear regression
49 analysis showed that predictive factors of no improvement in EF at 1 year post-AVR in the LO EF
50 group included plasma brain natriuretic peptide >365 pg/ml (P=0.0095) and echocardiographical LV
51 mass index (LVMI) >193 g/m² (P=0.0018).

52 **Conclusions:** Long-term outcome post-AVR for severe AI was largely influenced by preoperative LV
53 function. Predictive factors of failure in the functional recovery post-AVR included EF <25%,
54 pre-BNP >365 pg/mL, or LVMI >193 g/m².

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56 **Keywords:** AI, post-AVR, LV dysfunction, LVMI