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LEFT VENTRICULAR GLOBAL LONGITUDINAL STRAIN PREDICTS POST-OPERATIVE LEFT VENTRICULAR DYSFUNCTION IN PATIENTS WITH PRIMARY MITRAL REGURGITATION

Galli E^{1,2,3}, Oger E⁴, Levery M, Mabo P^{1,2,3}, Donal E^{1,2,3}

¹ Service de Cardiologie et Maladies Vasculaires, CHU-Pontchaillou, Rennes – France

² INSERM, UMR 1099, Rennes, France

³ LTSI, Université de Rennes 1, Rennes, France

⁴ Service de Pharmacologie et Toxicologie, CHU-Pontchaillou, Rennes – France

Introduction: the earlier detection of left ventricular (LV) contractile dysfunction in patient with primary mitral regurgitation (pMR) is of pivotal importance in determining the timing of surgery and predicting post-operative LV ejection fraction (LVEF). Unfortunately, the best predictors of such a target are still subject to debate. Their determination represents therefore the main aim of this study.

Methods: 96 patients with primary mitral regurgitation (mean age 66±24 years; male sex:68%) and preserved LVEF underwent mitral valve surgery (replacement or repair) between June 2007 and January 2014. All patients underwent standard 2D echocardiography and speckle tracking echocardiography before intervention and 6 months after surgery.

Results: patients were divided in 2 groups according to post-operative LVEF: patients with post-operative LVEF >50% (NOR n=58, 60%) and patients with LVEF ≤50% (LOW n=38, 40%). Patients in the NOR group had significantly lower LV end-systolic volumes (46.6±21.3 vs 55.9±22.1 ml, p=0.05), LV end-systolic-diameters (33.4±5.5 vs 37.9±6.4 mm, p=0.001), and LV global longitudinal strain (GLS) values (-19.9±3.1 vs -18.0±4.1 %, p=0.01) (Table 1). At logistic regression analysis, GLS was the only predictor of a post-operative LVEF>50% (HR 0.48, 95% CI 0.26-0.82, p=0.02). A cut-off GLS of -19.9% resulted the best predictor of reduced post-operative LVEF (sensitivity: 57%, specificity 69%, AUC 0.69, p=0.04).

Table 1	Post-OP LVEF≤50% N=58 (60%)	Post-OP LVEF >50% N=38 (40%)	p value
LVESV (ml)	55.9±22.1	46.6±21.3	0.05
LVESD (mm)	37.9±6.4	33.4±5.5	0.001
LVEF (%)	66.3±7.5	67.1±7.1	NS
LVGLS (%)	-18.0±4.1	-19.9±3.1	0.01

Conclusions: In patients with severe pMR and preserved LVEF, LV GLS resulted the only affordable predictor of LV dysfunction after surgery. Studies realized on larger samples are needed to define the role of GLS in the detection of the optimal timing of surgery in pMR.