

## Evaluation of Levosimendan in Patients with High Risk Severe Mitral Valve Disease Undergoing Mitral Valve Surgery

Levosimendan has anti-ischemic effects, improves myocardial contractility and increases systemic, pulmonary and coronary vasodilatation.

The present study investigated the perioperative hemodynamic effects of a prophylactic infusion of levosimendan in high-risk mitral valve surgery patients with left ventricle dysfunction, and compared short-term clinical outcomes with a control group in which levosimendan wasn't used.

Between October 2019 and May 2021, a prospective randomized clinical study was performed in 100 patients with high-risk mitral valve surgery with left ventricular dysfunction and pulmonary hypertension. In the study group, patients received levosimendan infusion at a dose of 0.1 mcg/kg/min after the induction of anesthesia while in control group levosimendan was not used.

The intraoperative and postoperative data were recorded for each patient in both groups. The hemodynamic measurements were performed at six predetermined time points (0, 1, 6, 12, 24 and 36 hours postoperatively).

Levosimendan had significantly improved postoperative hemodynamic values. It improved mean arterial pressure at different times postoperatively ( $p < 0.05$ ), heart rate at different times postoperatively ( $p < 0.05$ ). Also, levosimendan preserved LV systolic performance postoperatively (pulmonary artery pressure (PAP):  $51.7 \pm 6.4$ ,  $57.9 \pm 8.6$ ,  $P < 0.001$ ) and (ejection fraction (EF):  $37.1 \pm 9.3$ ,  $33.4 \pm 7.1$ ,  $P = 0.03$ ).

Prophylactic levosimendan improved the hemodynamics in high-risk mitral valve surgery patients. So levosimendan seems to be a safe and effective choice for preventing left ventricular failure in high-risk mitral valve surgical patients with LV dysfunction.