

## Thoracic epidural anesthesia preserves myocardial function during intraoperative and postoperative period in coronary artery bypass grafting operation

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**Aim.** The purpose of this study was to investigate the effect of thoracic epidural anesthesia (TEA) in patients with poor ventricular function undergoing conventional coronary artery bypass graft surgery (CABG) during the intraoperative and the postoperative period.

**Methods.** Eighty patients (n=80) undergoing elective CABG surgery with cardiopulmonary bypass (CPB) were divided into 4 groups: 1) General anesthesia (GA) plus poor ventricular (PV) function patients (Group GA plus PV) (n=20), ejection fraction (EF)  $\leq$ 40%; 2) GA plus good ventricular (GV) function patients (Group GA plus GV) (n=20), EF >40%; 3) Thoracic epidural anaesthesia (TEA)+GA, poor ventricular function patients (Group TEA+GA plus PV) (n=20), EF  $\leq$ 40%; 4) TEA+GA, good ventricular function patients (Group TEA+GA plus GV) (n=20), EF >40%.

**Results.** Within groups, at 4 h after the end of CPB, in the Group TEA+GA plus PV and Group TEA+GA plus GV, the cardiac index values were significantly higher than baseline values;  $P < 0.05$ , whereas no difference was found in the Group GA plus PV and Group GA plus GV. According to Tukey test, using repeated measures, between trend of groups, the cardiac index values were significantly different  $P < 0.05$ . In the Group TEA+GA plus PV, cardiac index values were significantly higher than the Group GA plus PV,  $P < 0.05$ . But in the Group GA plus GV, cardiac index values were not significantly different than the Group TEA+GA plus GV. The incidence of reperfusion ventricular fibrillation (VF) after release of aortic cross-clamp, in the Group TEA+GA plus PV (4 of 20 patients: 20%) was significantly lower than in the Group GA plus PV (11 of 20 patients: 55%);  $P < 0.05$ . The incidence of reperfusion VF after release of aortic cross-clamp, in the Group TEA+GA plus GV (5 of 20 patients: 25%) was not sig-

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nificantly different than in the Group GA plus GV (10 of 20 patients: 50%); NS.

**Conclusion.** TEA seems to be effective in patients with poor left ventricular function. Our results (improved cardiac index, reduced arrhythmias after release of aortic clamp and decreased inotropic requirement) are better with TEA, particularly in patients with poor left ventricular function.

**KEY WORDS:** Thoracic epidural anaesthesia - Myocardial function - Coronary artery bypass.

Patients undergoing coronary artery bypass grafting (CABG) have an increased risk of perioperative cardiac complications,<sup>1</sup> thus, strategies to reduce the perioperative risk have been the focus of several studies. The entire perioperative period is known to be stressful, characterized by complex and rapidly changing physiologic responses that may be poorly tolerated by patients with compromised circulation or poor left ventricular function. During and particularly after anesthesia and surgery, hypertension, tachycardia, and increased sympathetic activity are common occurrences.<sup>2</sup> These hyperdynamic cardiovascular responses adversely affect the myocardial function.

CABG-procedures in patients with poor ventricular function (ejection fraction, EF <40) may still cause complications. In these patients, a further deterioration of myocardial function may lead to postoperative low-cardiac-output (LCO) failure requiring administration

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