

Two cases of intraoperative ST segment depression treated with landiolol under combined spinal-epidural anesthesia in middle aged women

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Citation

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Abstract

We report two cases in which landiolol, an ultrashort-acting beta 1-selective blocker, was effective for ST segment depression observed under combined spinal-epidural anesthesia. In the first case, after administration of ephedrine for decrease in blood pressure, tachycardia and ST segment depression began to be observed during cesarean section. In the second case, following ephedrine administration for decreased blood pressure, tachycardia and ST segment depression were confirmed and the patient complained of chest pain during leiomyomectomy. In both cases, all of these symptoms were improved by administration of landiolol, and blood pressure was increased without use of a hypertensive drug.

Sir:

We report two patients in which landiolol was effective for intraoperative ST segment depression developed due to tachycardia under combined spinal-epidural anesthesia.

The first patient was a 37-year-old woman (158 cm, 46 kg) who underwent cesarean section. Preoperative electrocardiography revealed no abnormal findings. An epidural catheter was inserted for postoperative analgesia, and spinal anesthesia was performed with 7.5 mg of intrathecal hyperbaric bupivacaine at the L3/L4 interspace. Following confirmation of spinal block level by loss of sensation to cold and pinprick up to T 6 level, operation was allowed to start. After child birth, the estimated blood loss was 400 ml, blood pressure (BP) and heart rate (HR) were 130/80 mmHg and 70 beats per min (bpm), respectively. Thirty minutes after the start of the operation, it was found that BP had decreased to 85/50 mmHg and HR had increased to 95 bpm. Four mg of ephedrine was administered intravenously for maintenance of BP. Although BP recovered to 110/60 mmHg, HR increased to 115 bpm and -0.13 mV of ST segment depression was confirmed. After the start of landiolol administration at a dose of $6 \mu\text{g}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, HR decreased to 75 bpm and ST segment depression improved to -0.05 mV. At the end of surgery, ST segment depression was -0.01 mV, and BP was stable at around 140/70 mmHg, without use of a hypertensive drug.

No ischemic changes were apparent in postoperative electrocardiography.

The second patient was a 38-year-old woman (152 cm, 52 kg) who underwent leiomyomectomy for uterine myoma. In a preoperative examination, no ischemic changes were evident in electrocardiogram. An epidural catheter was inserted for postoperative analgesia, and spinal anesthesia was performed with 12.5 mg of intrathecal hyperbaric bupivacaine at the L3/L4 interspace. During 40 minutes after spinal anesthesia, the patient required 12 mg total of ephedrine for maintenance of BP, and HR increased to 100 bpm and -0.13 mV of ST segment depression was developed. The patient complained of discomfort in the chest. Fifteen minutes after the start of landiolol administration at a dose of $5 \mu\text{g}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, HR had improved to 80 bpm with improvement of ST segment depression. No ischemic changes were indicated in postoperative cardiac examinations.

Myocardial infarction in pregnant women or premenopausal women is rare and has been reported, even when a patient has no underlying heart disease [1]. In these two cases, ST segment depression developed with increase in HR and did not improve even after restoration of BP. We consider that myocardial ischemia developed as a result of induced tachycardia or was facilitated by the beta adrenergic action of ephedrine, and that myocardial oxygen consumption was

increased. Landiolol is a beta 1-selective antagonist that has a weak negative inotropic action [2]. Landiolol can contribute the prevention of myocardial ischemia, and has been used for ST segment depression in postoperative period [3,4]. Since no symptoms or ischemic changes were found in postoperative examinations in each patient, we conclude that myocardial ischemia may develop temporarily, and was safely treated with landiolol.

References

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