Transesophageal echocardiography for monitoring segmental wall motion during off-pump coronary artery bypass surgery

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In this prospective, observational study, we evaluated whether transesophageal echocardiography allows for monitoring left ventricular segmental wall motion during cardiac displacement for off-pump coronary artery bypass (OPCAB) surgery. On the basis of a pilot study that showed frequent loss of transgastric views during OPCAB surgery, we analyzed only midesophageal views. The midesophageal 4-chamber view, 2-chamber view, and long-axis view were recorded in 60 patients after opening the chest and placing an epicardial stabilizer on the displaced heart. Using the 16-segment model, 2 echocardiographers independently performed offline analysis of segmental wall motion. The percentage of patients in whom \( \geq 14 \) left ventricular segments were readable was calculated at baseline and after cardiac displacement and placement of an epicardial stabilizer. At baseline, \( \geq 14 \) segments were readable in 59 (98%) of 60 patients. After cardiac displacement, \( \geq 14 \) segments were readable during 58 (76%) of 76 revascularizations of the left anterior descending coronary artery (\( P < 0.01 \) versus baseline), during 33 (83%) of 40 revascularizations of the left circumflex coronary artery (\( P < 0.01 \) versus baseline), and during 29 (94%) of 31 revascularizations of the right coronary artery (not significant). We conclude that the number of readable segments decreased after cardiac displacement but that availability of \( \geq 14 \) readable segments allowed for reliable monitoring of segmental wall motion in 4 of 5 patients during OPCAB surgery.

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