

Target Vessel Detection by Epicardial Ultrasound in Off-Pump Coronary Bypass Surgery

Publication Summary Document

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Objective

This study was undertaken to evaluate the introduction of high-frequency epicardial ultrasound (ECUS) to assess and evaluate embedded arteries during off-pump coronary bypass.

Study

Between June 2010 and June 2011, a total of 89 consecutive patients underwent isolated coronary bypass surgery. The patients were assigned to one of two groups, depending on whether ECUS was used in the operation (n = 10, ECUS group) or not (n = 79, non-ECUS group). The VeriQ C system from Medistim is routinely used to detect the target vessels in the operation. The total number of distal anastomoses was 299, and 12 target vessels could not be identified either visually or on palpation. In the ECUS group, there was no patient in whom anastomosis was abandoned or the target vessels changed.

Results

With the aid of this technique, complete revascularization without cardiopulmonary bypass in all patients was achieved without cardiopulmonary bypass in all patients. In the present study, operation time and coronary anastomosis time tended to be longer in the ECUS group because target coronary artery localization and assessment required several minutes and anastomosis of the vessels also required some time. However, there was no significant difference in postoperative data between the two groups. Moreover, no complication related to using ECUS occurred, such as coronary vessel injury or compromise, infection, or electrical or mechanical injuries.

Conclusion

In the present study, in which the target coronary arteries could not be detected either visually or on palpation in 12 (4.01%) of 299 patients, the use of high-frequency ECUS allowed all patients to undergo off-pump coronary bypass without conversion to cardiopulmonary bypass during the operation. High-frequency ECUS is therefore useful in off-pump coronary bypass surgery

Medistim Comments

In this study one of the patient had the LAD embedded in the myocardium and located at a depth of 4 mm from the surface. The LAD shown to be very difficult to identify without ECUS. Using the VeriQ C™ the surgeon had access to the ECUS technology intraoperatively and could perform an instant qualified assessment during CABG. The vital information given by performing ECUS prior to surgery, allowed for an easier way of strategizing and map out all target vessels intraoperatively before start.

Reference

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http://journals.lww.com/innovjournal/Abstract/2013/07000/Target_Vessel_Detection_by_Epicardial_Ultrasound.1.aspx