Commentary: Is routine use of transit-time flow measurement and high frequency ultrasound assessment in coronary bypass grafting ready for prime time, or a waste of time?

Gaetano Paone, MD, MHSA

Taggart and colleagues1 report on the use and results of transit-time flow measurement (TTFM) in combination with high frequency ultrasound scanning (HFUS) in 1016 patients undergoing coronary artery bypass grafting (CABG)1 in the multicenter Registry for Quality assessment (REQUEST) study. The primary outcome, any change in the planned surgical procedure, occurred in 25.2% of patients. In 77%, these changes were based solely on otherwise unsuspected abnormal TTFM and/or HFUS findings.

All participating surgeons (N = 36) were trained in a “structured REQUEST study protocol” that further recommended that each had performed more than 20 cases with TTFM and HFUS before the study. Protocol adherence was “highly recommended…not mandatory.” Correspondingly, whereas TTFM was utilized in 99.2% of the 1016 patients, HFUS was used to assess the ascending aorta in 79.3%, in situ conduits in 65.1%, coronary targets in 47.5%, and completed grafts in 59.3%.

The authors attribute this lower than expected use of HFUS to understandable technical challenges on the inferior and lateral walls, particularly during beating heart surgery, and to “real-world clinical decision making.” However, the percent use was based on the number of patients, not grafts or anastomoses. Apparently, and despite the authors’ suggestions that “…HFUS is relatively easy to use for grafts on the anterior wall” and can identify unsuitable anastomotic targets not evident by normal visual and manual inspection, in approximately half the patients a decision was made not to evaluate the [left anterior descending artery] or its subsequent graft with HFUS. Similarly, and again presumably based on experienced decision making, epi-aortic scanning was not performed in approximately 20% of patients. The suggestion that more frequent use may have provided even greater clinical benefit seems rather circular in reasoning given the decision not to perform the exam was largely intentional and based on “surgeon experience, preference, and discretion.”

It is rather sobering that the physicians, who I am certain are superb coronary surgeons, identified so many circumstances prompting various procedural changes and technical revisions. The outstanding results, including a mortality rate of 0.6%, generally support that use of TTFM and HFUS be considered routine measures during CABG.

Division of Cardiothoracic Surgery, Emory University School of Medicine, Atlanta, Ga.
Disclosures: Author has nothing to disclose with regard to commercial support.
Received for publication May 30, 2019; accepted for publication June 1, 2019; available ahead of print July 10, 2019.
Address for reprints: Gaetano Paone, MD, MHSA, 141 Windwood Pte, Saint Clair Shores, MI 48080 (E-mail: gpaone313@gmail.com).
J Thorac Cardiovasc Surg 2020;159:1295-6
0022-5223/$36.00
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https://doi.org/10.1016/j.jtcvs.2019.06.009

Central Message
Findings prompting procedural changes were identified in 25.2% of patients undergoing coronary bypass surgery. The authors suggest the use of TTFM and HFUS be considered routine measures during CABG.

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A waste of time? Probably not, but more data are needed before routine use of these techniques can be declared ready for primetime.

References