Use of the Internal Mammary Artery Graft and In-Hospital Mortality and Other Adverse Outcomes Associated With Coronary Artery Bypass Surgery

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The use of the left internal mammary artery (LIMA) to bypass the left anterior descending artery (LAD) is the “gold standard” of coronary artery revascularization, recognized by interventionalists and surgeons alike. The better size match with the coronary artery, the single anastomosis, and the biochemical and physical qualities of this conduit for the most important coronary artery in the human circulation, the LAD, are clear advantages over the saphenous vein graft. The seminal paper by Loop et al showed the important influence of this operation on the longevity of patients who are operated on for coronary artery disease, and their data have been substantiated by others. Nevertheless, the LIMA has not been generally used by surgeons in the variety of clinical coronary artery syndromes requiring coronary artery bypass grafting (CABG) because of some relative contraindications. These have included left ventricular hypertrophy, severe left ventricular dysfunction, emergency operations, chronic obstructive pulmonary disease with enlarged lungs, advanced age, and an obstructed left subclavian artery. Theoretically, increased conduit blood flow is considered necessary in these situations, and this was thought best provided by a saphenous vein graft to the LAD rather than a LIMA. Thus, the LIMA was not recommended for emergent/urgent situations or in patients with the above complications. Also, the longer harvest time of the IMA and the increased bleeding tendency of the emergent patient, especially those undergoing interventional procedures in the cardiac catheterization laboratory who may be on some form of anticoagulation and in the fragile elderly, were also considered contraindications to the use of the LIMA. Therefore, in the comprised patient with any of the above stipulations, even the young, the LIMA has not been generally used.

This prospective study by Leavitt and colleagues of >21,000 patients undergoing CABG for the first time who had their surgery performed in the “modern” era (between 1992 to 1999) has refuted many of these long-held beliefs. In every clinical situation, including the aforementioned ones...
patient, has grown based on the excellent data with first one IMA and then two IMAs. Mammary artery conduits, combined with the radial artery conduit, have given rise to an operation that proposes the best long-term solution for coronary revascularization in younger patients.

More data on CABG will continue to be analyzed from this database. Observational clinical data like this report are extremely important to continually evaluate and upgrade CABG surgery, which is already the most well-studied operation in history. Such data are essential for improving outcomes in the increasingly complicated patient base referred for CABG in the new millennium.

References

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