LETTERS TO THE EDITOR

Runoff dependence of inferior epigastric artery grafts in coronary artery operations

To the Editor:

In recent years the inferior epigastric artery (IEA) has been used by some authors as a second arterial graft along with the internal thoracic artery (ITA) to achieve total arterial myocardial revascularization.^{1,2} In a recent study Buche and associates³ reported an 86% midterm angiographic patency rate for IEA grafts, with 25 of 29 grafts patent after an average of 25 months.

This excellent result differs markedly from our experience in the use of the IEA in a series of patients comparable for incidence of risk factors and extension of the coronary disease. From July 1990 to October 1992 we used the IEA in 38 patients (mean age 50.7 ± 6.5 years, range 38 to 65 years) with a mean of 2.8 critically diseased coronary arteries. We performed 124 distal anastomoses (3.3 per patient): 41 with the IEA, 42 with the left ITA, 38 with the right ITA, and only 3 with the saphenous vein. No patient had bilateral IEA grafts. Proximal anastomoses of the IEA grafts were performed directly on a punched orifice in the ascending aorta. No perioperative deaths occurred; we recorded 2 perioperative myocardial infarctions that were not related to IEA graft malfunction. After giving informed consent, 23 of 38 patients underwent selective IEA angiography at a mean follow-up of 21.2 ± 11.2 months. In these patients the IEA was anastomosed as follows: in 3 cases to the left anterior descending artery, in 9 to a diagonal branch, in 1 to the first and second diagonal branches with a bifurcated conduit, in 6 to an obtuse marginal branch, in 2 to the first and second obtuse marginal branches with a bifurcated conduit, in 1 to the right coronary artery, and in 1 to the ramus medianus. We found IEA grafts patent or totally occluded, but no string sign was recorded. Total IEA patency rate was 52.2% (12/23). Correlating IEA patency rate with the coronary branch revascularized, we found a 100% patency whenever the IEA had been anastomosed to coronary branches of greater caliber (3 left anterior descending arteries, 1 ramus medianus, and 1 right coronary artery). Patency rate was much lower when the IEA was grafted to smaller-caliber coronary branches like diagonal (40%) and obtuse marginal branches (37.5%).

Buche and coauthors implanted IEA grafts mainly on coronary arteries with a presumably satisfactory runoff (126 right coronary arteries and 2 left anterior descending coronary arteries out of 157 anastomoses); midterm patency rate when the IEA was used to bypass occluded right coronary arteries was higher than that detected when the IEA was used to bypass mildly stenotic right coronary arteries. In our study we also found a good patency rate when the IEA was used to bypass good-caliber coronary arteries, but we recorded a marked runoff dependence of the graft when the IEA was used to bypass small coronary branches, according to the findings of other authors.⁴ The difference between our results and those reported by

Buche's group may be attributed at least in part to the different distribution of target coronary branches bypassed, with a prevalence in our series of obtuse marginal and diagonal branches.

In conclusion, the low patency rates of IEAs grafted to obtuse marginal and diagonal branches suggest that the IEA cannot be considered in an attempt to increase the application of arterial grafts as coronary bypass conduits or to perform a total arterial myocardial revascularization. As a consequence, we now take into consideration the use of IEA grafts only in patients who have a contraindication to bilateral ITA or right gastroepiploic artery grafting or in patients having unsuitable greater saphenous veins.

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Reply to the Editor:

We read the letter from Donatelli and associates with great interest. We wonder whether the disappointing results reported by this team might be due to the size of their experience with the inferior epigastric artery (IEA). We believe that more than 38 operations and 23 angiograms are needed to gain reliable experience with a new graft.

The midterm patency rate of the IEA that we recently published in this JOURNAL was based not only on the 29 postoperative angiograms that Donatelli and associates mentioned in their letter, but also on a total of 77 angiograms obtained between 6 and 43 months (average 14.8 months) after the operation. On this basis, we have