For CABG, use of artery from arm does not appear to be superior to vein grafts from the leg

11 January 2011

Use of a radial artery (located within the forearm, wrist and hand) graft compared with a saphenous vein (from the leg) graft for coronary artery bypass grafting did not result in improved angiographic patency (the graft being open, unobstructed) one year after the procedure, according to a study in the January 12 issue of *JAMA*.

Coronary artery bypass grafting (CABG) is one of the most common operations performed, with a database indicating that in the United States, 163,048 patients had CABG surgery in 2008. The success of CABG depends on the long-term patency of the arterial and venous grafts. Arterial grafts are thought to be better conduits than saphenous vein grafts for CABG based on experience with using the left internal mammary (breast) artery to bypass the left anterior descending coronary artery, according to background information in the article. The efficacy of the radial artery graft, which is easier to harvest than other arteries, is less clear. A database shows that more than 10,000 patients in the United States received radial artery grafts in 2008, suggesting that about 6 percent of patients undergoing CABG have radial artery grafts.

Steven Goldman, M.D., of the Southern Arizona VA Health Care System and the University of Arizona Sarver Heart Center, Tucson, and colleagues compared 1-year angiographic patency of radial artery grafts vs. saphenous vein grafts in 757 participants (99 percent men) undergoing elective first-time CABG. The randomized controlled trial was conducted from February 2003 to February 2009 at 11 Veterans Affairs medical centers. The left internal mammary artery was used to preferentially graft the left anterior descending coronary artery whenever possible; the best remaining recipient vessel was randomized to radial artery vs. saphenous vein graft. The primary outcome measured was angiographic graft patency at 1 year after CABG. Secondary outcomes included angiographic graft patency at 1 week after CABG, heart attack, stroke, repeat revascularization and death.

The analysis included 733 patients (366 in the radial artery group, 367 in the saphenous vein group). The researchers found that there was no significant difference in 1-year graft patency between radial artery (238/266; 89 percent) and saphenous vein grafts (239/269; 89 percent). Also, there was no significant difference in 1-week patency between patients who received radial artery grafts (285/288; 99 percent) vs. saphenous vein grafts (260/267; 97 percent), or in the other secondary outcomes. There was no difference in the number and types of adverse events, including serious adverse events.

"Although most clinicians assume that compared with vein grafts, arterial grafts have an improved patency rate, there are little multi-institutional prospective data on radial artery graft vs. saphenous vein graft patency," the authors write.

Because the important question is long-term patency, the researchers note that there will be a 5-year angiographic follow-up of these patients to define chronic graft patency in this population.

More information: JAMA. 2011;305[2]:167-174.

Provided by JAMA and Archives Journals