

Early Patency Evaluation of New Distal Anastomotic Device in Internal Mammary Artery Grafts Using Computed Tomography Angiography

Husam H. Balkhy, MD, L. Samuel Wann, MD, and Susan Arnsdorf, RN

Abstract

Introduction: Traditional coronary artery bypass grafting is performed using a hand sewn technique. The C-Port xA and Flex A anastomotic stapling devices (Cardica Inc., Redwood City, CA) were cleared by the Food and Drug Administration for use in distal coronary anastomoses in November 2006 and April 2007, respectively. They provide the ability to create a compliant, consistently reproducible, and automated anastomosis. Multidetector computed tomography (CT) has been shown to be effective in evaluating coronary artery bypass graft patency.

Methods: The first 24 patients to undergo internal mammary artery (IMA) anastomosis using the automated device in our practice were included in the study. Twenty-five IMA grafts (24 left IMA and 1 right IMA) were created using the C-Port xA or Flex A anastomotic device as part of multivessel off-pump coronary revascularization by sternotomy. Graft patency was evaluated at 30 days in the first 10 grafts and at 90 days in the next 15 grafts using multidetector (64 slice) CT.

Results: There were no device failures. There were no perioperative strokes, myocardial infarctions, or deaths. All 10 IMA grafts evaluated at 30 days were patent using multidetector CT. One of the 15 IMA grafts studied at 90 days was occluded using multidetector computed tomography.

Conclusions: The C-Port xA and Flex A distal anastomotic devices provided a safe and effective means to create a left IMA-left anterior descending artery anastomoses in coronary bypass surgery with excellent short to midterm patency in this early experience. Longterm follow-up is warranted. These findings will have important implications for future sternal sparing coronary bypass surgery.

Key Words: Coronary bypass graft, Distal anastomotic device, Internal mammary artery, C-Port, Multidetector CT angiography. (*Innovations* 2010;5:109–113)

Accepted for publication January 11, 2010.

From the Department of Cardiac Surgery, Wisconsin Heart Hospital, Milwaukee, WI USA.

Supported by Cardica, Inc., Redwood City, CA USA.

Address correspondence and reprint requests to Husam H. Balkhy, MD, Department of Cardiac Surgery, the Wisconsin Heart Hospital, Lincoln Center III-Professional Building, 10150 W National Ave., Suite #190, West Allis, WI 53227 USA. E-mail: skidoc@execpc.com.

Copyright © 2010 by the International Society for Minimally Invasive Cardiothoracic Surgery

ISSN: 1556-9845/10/0502-0109