

UNSELECTED USE OF BILATERAL INTERNAL THORACIC ARTERIES FOR MYOCARDIAL REVASCULARIZATION IN DIABETICS DOES NOT INCREASE PERIOPERATIVE MORBIDITY



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Introduction

Diabetic patients with multivessel coronary artery disease enjoy survival advantages following surgical revascularization when compared to other therapies.[1] Centers are increasingly reporting that BITA revascularization should be the new standard for coronary artery bypass grafting (CABG). [2, 3]

Earlier reports of increased perioperative morbidity in diabetic patients have prevented the widespread use of BITAs. Previous studies have reported complications such as deep sternal wound infection to be as high as 14% in diabetic patients.[4] Centers have suggested that the use of BITA grafting in diabetic patients may possibly be contraindicated. [4-6]

The purpose of our study was to investigate morbidity and mortality in all diabetic patients undergoing CABG with BITA grafting in our institution.

Methods

Since 1992 we have used BITAs on all patients undergoing revascularization in an unselected fashion. All operations were performed on cardiopulmonary bypass. Fentanyl, midazolam, oxygen, isoflurane and muscle relaxant were used as general anesthetic in all cases.

The internal thoracic arteries were harvested in a partially skeletonized fashion by mobilizing the artery and veins together without underlying fascia or muscle. The right internal thoracic artery was used as a free graft from the aorta in all cases unless there was extensive plaque in the ascending aorta. The records of these patients were reviewed and perioperative morbidity recorded. These results were confirmed by correlation with the New York State Cardiac Surgery Database over this time period. Survival data was obtained by social security number inquiry.

Results

Between 1992 and 2002, 603 patients with diabetes underwent coronary artery bypass grafting with BITAs. Average age was 64 ± 10 years (32 to 89), preoperative ejection fraction was $43 \pm 15\%$ (10 to 80), 16.4% had chronic obstructive pulmonary disease, 21.2 % had peripheral vascular disease and 5.6% had renal insufficiency. An average of 3.7 ± 0.9 distal anastomoses were performed per patient. Post-operative complications included re-operation for bleeding (2.5%), wound infection (3.3%), stroke (4.5%), renal failure (1.3%), and prolonged intubation (6.3%). Thirty day all-cause mortality was 3%. Logistic Regression indicated that MI in the preceding 23 hours (LR .019 95% CI .001 to .271 $p=.003$), history of previous PTCA (LR .076 95% CI .010 to 0.594 $p=.014$), CRI (LR .156 95% CI .041 to .591 $p=.006$) and $EF < 30$ (LR .243 95% CI .103 to .574 $p=.001$) were strongest factors selecting against survival.

Discussion

Our data evaluated diabetic patients of all age and ejection fractions and indicated that patients with diabetes do not fare as well as other patients after CABG grafting. Our findings support earlier studies that suggest that diabetics generally have a greater incidence of morbidity and mortality compared to healthier cohorts.[7-9]

While a better technique of cardiac revascularization aids death from cardiac causes, diabetes continues to have detrimental affects on all organ systems. Our data suggests that BITA grafting in diabetics confers survival advantage over similar diabetic patients revascularized with only one internal mammary. The use of bilateral ITAs does not appear to cause increased perioperative morbidity.

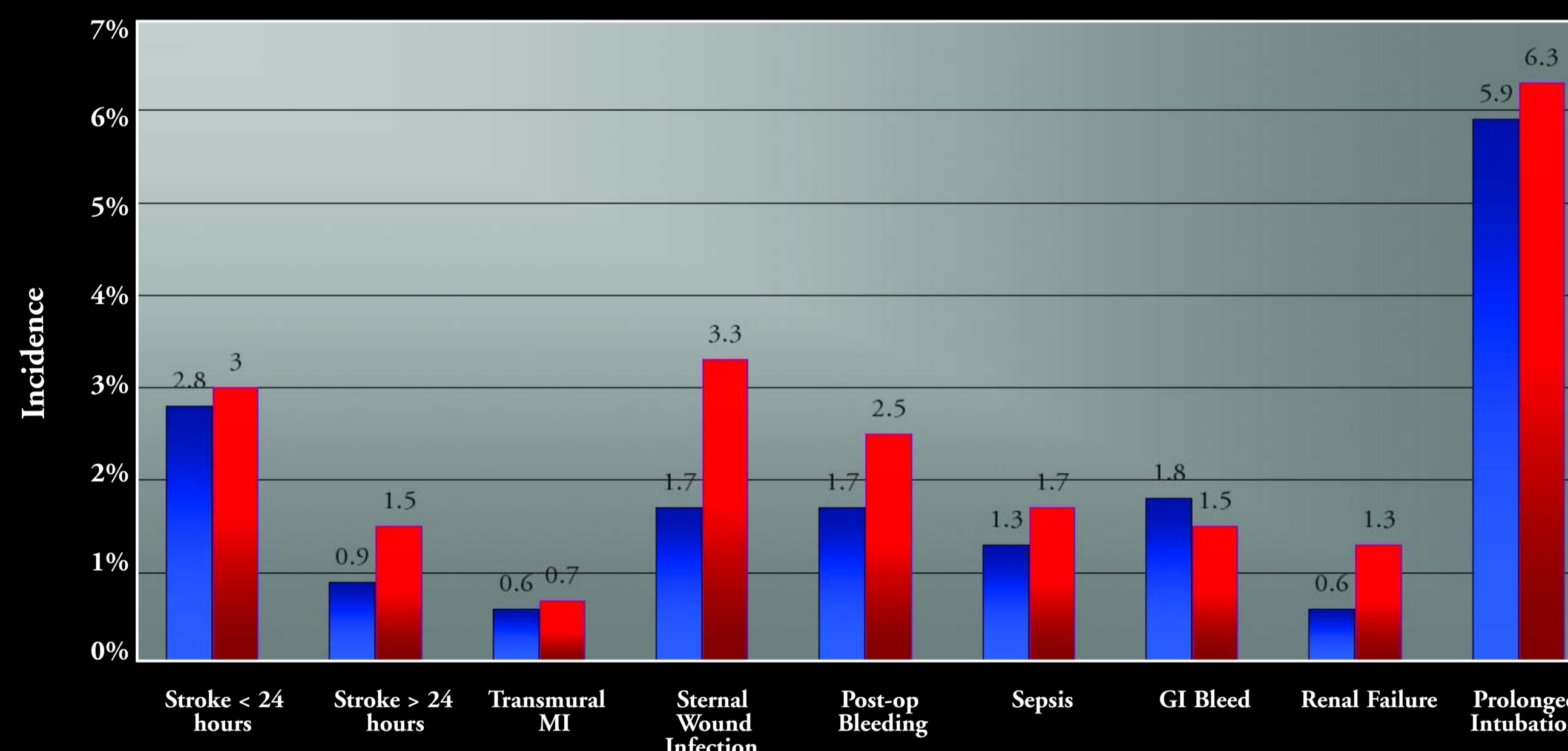
Conclusion

Our study demonstrates that patients share a survival benefit with BITA revascularization. There is not a statistically significant increase in perioperative morbidity between diabetic patients who receive more than one internal thoracic arterial graft. Bilateral internal thoracic artery grafting can be performed without prohibitive perioperative morbidity in all patients regardless of the presence or absence of diabetes.

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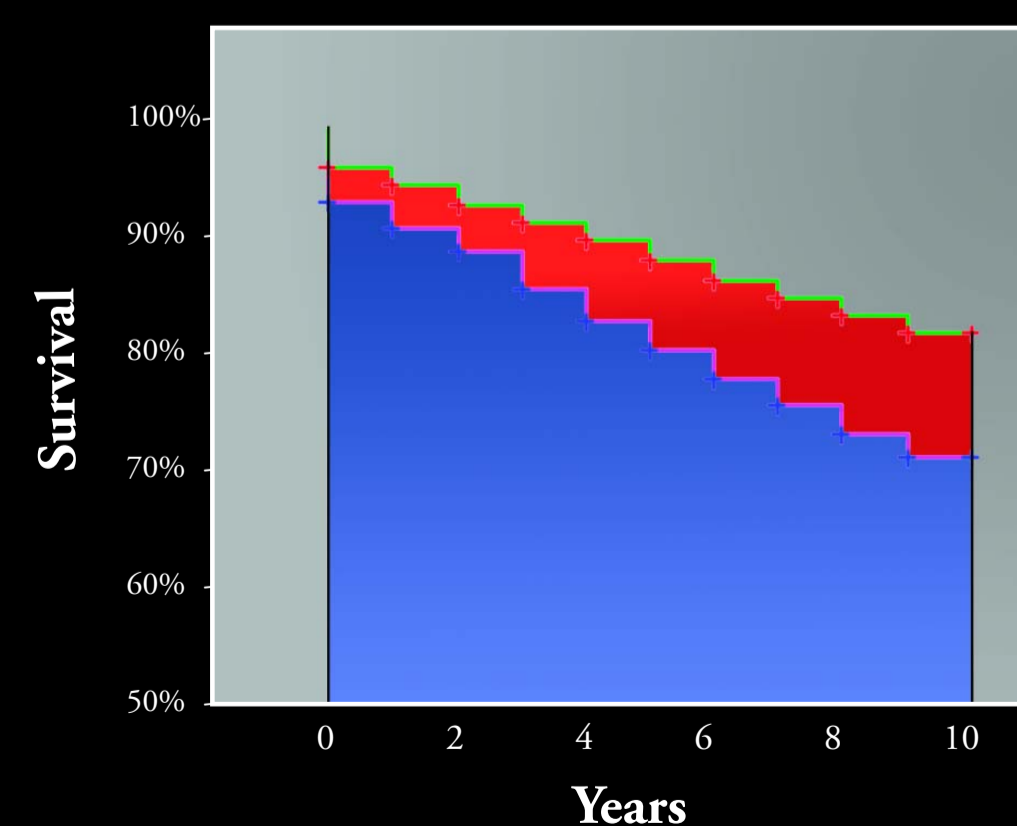
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Morbidity in Diabetic Patients after Revascularization with BITA vs. LITA



BITA
LITA

Kaplan-Meier Survival Data for Non-Diabetic Patients Revascularized with BITA vs. LITA



Kaplan-Meier Survival Data for Diabetic Patients Revascularized with BITA vs. LITA

