

HbA_{1c} Reliably Predicts Bad Bypass Outcomes

BY MITCHEL L. ZOLER
Philadelphia Bureau

WASHINGTON — Serum level of hemoglobin A_{1c} was better than diabetic status for identifying patients with the highest risk of bad outcomes following coronary artery bypass surgery, in a review of more than 3,000 patients.

"A hemoglobin A_{1c} [HbA_{1c}] level of 7% or higher was a powerful predictor of in-hospital mortality or morbidity after elective coronary artery bypass surgery," Dr. Michael E. Halkos said at the annual meeting of the American Association for Thoracic Surgery.

In contrast, patients with an HbA_{1c} level lower than 7% had mortality and morbidity that were similar to those of patients without diabetes, said Dr. Halkos, of the division of cardiothoracic surgery at Emory University, Atlanta.

These findings raise the possibility of delaying elective coronary surgery in patients with poorly controlled diabetes until their control improves and their serum level of HbA_{1c} drops, he said. In addition, future studies should examine a possible prognostic role for HbA_{1c} in patients undergoing other types of elective cardiac surgery.

The review included 3,555 consecutive patients who underwent primary, elective coronary artery bypass graft (CABG) at the university during April 2002-June 2006. The series included 3,089 patients whose records included a measure of serum HbA_{1c} taken shortly before surgery. All patients were treated with a uniform and strict insulin-infusion regimen during the intraoperative and perioperative periods that was designed to maintain blood glucose levels at less than 120 mg/dL.

A total of 2,275 patients (74%) had a preoperative HbA_{1c} level lower than 7%, and 814 (26%) had a level of 7% or higher. In addition, 1,240 patients (40%) were diag-

nosed with diabetes or had a history of diabetes before surgery, and 1,849 (60%) had no history of diabetes. Among the patients with a history of diabetes, 42% were well controlled at the time of surgery, with an HbA_{1c} lower than 7%.

Surgical outcomes were assessed by the incidence of five adverse events during hospitalization following surgery: death, myocardial infarction, stroke, renal failure, and deep sternal-wound infection.

The incidences of four of these five adverse outcomes were all significantly reduced among the patients who had surgery with an HbA_{1c} level lower than

7%, compared with those whose level was 7% or higher. The only outcome that was not significantly less was myocardial infarction. (See box.)

In contrast, when patients with and without a history of

diabetes were compared, stroke was the only adverse outcome that was significantly more common among the patients with diabetes, Dr. Halkos said. In addition, when the incidence of adverse events was tallied only among well-controlled patients with diabetes (those with an HbA_{1c} level lower than 7%), the rates were not significantly different than the rates among the patients without diabetes.

Another analysis of the data used HbA_{1c} levels as a continuous variable, instead of a dichotomous variable with the cut point at 7%. A multivariate analysis that adjusted for baseline differences among the patients showed that every 1% increase in HbA_{1c} level was linked with a statistically significant increase in the incidence of four of the five adverse outcomes studied following CABG. The only outcome that did not show a significant relationship was stroke.

The significant increases in event rate for each 1% increase in HbA_{1c} were 55% for death, 66% for myocardial infarction, 18% for renal failure, and 35% for deep sternal-wound infection. ■

These findings suggest that elective coronary surgery in patients with poorly controlled diabetes should be delayed until their control improves and their HbA_{1c} drops.

Revised Heart Transplant Wait List Criteria Criticized

BY BRUCE JANCIN
Denver Bureau

NEW ORLEANS — Obesity should not be considered a relative contraindication to heart transplantation, contrary to last year's revised International Society for Heart and Lung Transplantation recommendations, Dr. Mark J. Russo said at the annual meeting of the American College of Cardiology.

He presented an analysis of nearly 19,000 U.S. first-time adult heart transplant recipients who underwent the procedure in 1995-2005. The data, from the United Network for Organ Sharing (UNOS) registry, showed



"The data support transplanting patients with a BMI up to 35 kg/m². We say that recognizing that patients with non-normal BMIs face increased risks, but if you consider the alternatives to transplanting these patients, their survival can generally be measured in weeks or months, so the benefits of transplantation would be great," explained Dr. Russo of the International Center for Health Outcomes and Innovation Research at Columbia University, New York.

"When the committee developed its recommendation, the members noted that it was supported only by expert opinion based upon the best available data. We believe that we've

now provided data better than what was available at the time the recommendations were made and hope that future recommendations would reflect our findings," the cardiothoracic surgeon said.

The transplant society committee made no recommendation regarding underweight patients. Yet cachexia is a powerful marker of poor prognosis in end-stage heart failure, and the UNOS data showed the 1-year survival of underweight recipients was significantly worse than normal, overweight, or obese recipients. In fact, it approximated the 1-year survival of severely or morbidly obese patients, he noted. ■

'The [UNOS registry] data support transplanting patients with a BMI up to 35 kg/m².'

DR. RUSSO

Hypertension, Vasculopathy Cut Long-Term Survival Post Transplant

SAN FRANCISCO — Better treatments for posttransplant hypertension or cardiac allograft vasculopathy would help more patients reach 20 years of survival after a heart transplant, Dr. Saleem Haj-Yahia said at the annual meeting of the International Society for Heart and Lung Transplantation.

Little is known about clinical factors associated with long-term survival after a heart transplant. To elucidate such factors, Dr. Haj-Yahia and his associates at Royal Brompton and Harefield Hospital, London, analyzed data on 211 patients who underwent orthotopic heart transplantation between 1980 and 1985. Detailed records also were available for 107 donors in these cases.

Twenty years after their transplants, 53 of the 211 patients (25%) were still alive.

Actuarial survival rates for other times after transplant were 71% at 1 year, 61% at 5 years, 47% at 10 years, and 34% at 15 years. By 25 years posttransplant, 16% of patients remained alive.

Twenty-year survival was more likely in patients who were younger at the time of the transplant, did not develop posttransplant hypertension, and had lat-

er development of cardiac allograft vasculopathy (CAV) than did other patients, he reported.

Multivariate analysis showed that older age at transplant nearly doubled the risk of death before 20 years, and the development of posttransplant hypertension increased the risk of death more than fivefold.

A longer interval from transplant to the diagnosis of angiographic CAV increased the odds of long-term survival by about 27%, Dr. Haj-Yahia reported.

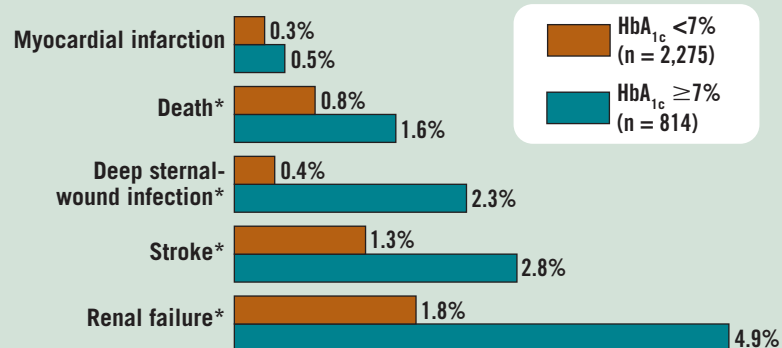
"That means more effective treatment of posttransplant hypertension and CAV may improve survival," he said.

Factors not associated with long-term survival included the gender of the recipient or donor, the donor's age, ischemic time, the indication for transplantation, posttransplant diabetes, renal impairment, human leukocyte antigen levels, recent left ventricular function, frequency of rejection in the first year post transplant, and immunosuppressive regimen.

Cardiac-related events were the main cause of death in this cohort.

—Sherry Boschert

Rate of Adverse Events After CABG Linked to HbA_{1c} Levels



*Statistically significant

Note: Adverse outcomes occurred during hospitalization after surgery.

Source: Dr. Halkos