Title

Longitudinal study of vascular remodeling in coronary arteries after heart transplantation

Journal

CIRCULATION, 96(8)

ISSN

0009-7322

Authors

Wener, LS
Johnson, JA
Tobis, JM
et al.

Publication Date

1997

Circulation

Issue: Volume 96(8S) Supplement, 21 October 1997, pp 429-I

Publication Type: [Abstracts From the 70th Scientific Sessions; Orange County Convention Center; Orlando, Florida; November 9-12, 1997]

ISSN: 0009-7322

Accession: 00003017-199710211-02437

[Abstracts From the 70th Scientific Sessions; Orange County Convention Center; Orlando, Florida; November 9-12, 1997]

Longitudinal Study of Vascular Remodeling in Coronary Arteries after Heart Transplantation

Wener, Lianne S; Johnson, Jay A; Tobis, John M; Einhorn, Kim; Inglish, Julie A; Cassem, Judith D; Currier, Jesse W; Kobashigawa, Jon A

University of California, Los Angeles, CA.

Intercouncil Review: Heart Transplantation: New Insights in Acute and Chronic Rejection: Tuesday Afternoon; Convention Center Room 208B-C

Abstract 2397

Cross-sectional studies by intracoronary ultrasound (ICUS) in heart transplant recipients have suggested that vascular remodeling occurs in coronary arteries years after transplant. However, there have been no reports to describe vascular remodeling in the same cohort of patients studied prospectively using morphometric analysis (10 evenly spaced images obtained from a slow pullback from the left anterior descending coronary artery). Morphometric analysis better reflects total vessel anatomy compared to previously reported site (2-3 images) analysis. Therefore, we reviewed 21 patients studied by ICUS at 2 months, 1 year, 2 years, and 3 years after heart transplant. Over time, the coronary artery luminal area decreased from baseline level of 12.2 mm^2 to a 3-year mark of 10.0 mm2 ($p = 0.02$). Vessel shrinkage was seen in 18/21 patients. After an initial rise in intimal parameters (maximal intimal thickness, intimal index, and plaque area) from baseline to 1 year, there was a trend for a decrease in intimal parameters between year 1 and year 3 after transplant. For example, plaque area decreased from 2.05 mm2 at 1 year post-transplant to 1.48 mm2 by 3 years post-transplant ($p = 0.05$). Conclusion: In a majority of heart transplant patients, early intimal thickening in the first year post transplant is accompanied by constrictive remodeling. Over the subsequent 2 years, further constrictive remodeling is seen without an increase in intimal area. Late constrictive remodeling, even without more intimal formation, may result in lumen narrowing. Thus, in addition to intimal formation, constrictive remodeling may contribute to the pathogenesis of transplant coronary artery disease in a manner similar to restenosis after coronary angioplasty.