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Authors

Anzai, H

Kobashigawa, J

Tobis, J

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3SY06-6 Intravascular ultrasound results 1 year after cardiac transplantation predict long-term clinical and angiographic outcomes

H. Anzai, J. Kobashigawa, J. Tobis. *UCLA School of Medicine, USA*

Background: Excessive intimal hyperplasia is the major threat to long-term graft survival after cardiac transplantation. Intravascular Ultrasound (IVUS) is more sensitive than coronary angiography and detects early wall thickening.

Methods: Data will be collected on 300 cardiac transplant recipients who have had appropriate IVUS studies from 5 centers. IVUS tapes (at baseline and 1-year follow-up) will be analyzed and patient follow-up will be obtained.

Results: Data has been analyzed from 103 patients from 3 medical centers where matching sites from the IVUS images could be identified. There were 23 patients who developed intimal hyperplasia (IH) > 0.5 mm thickness at one year post-transplant. There was no significant difference in baseline demographics or use of immunosuppression between these two groups. Lipid levels were similar except for triglycerides which were higher in the group with early IH (170 ± 87 vs. 255 ± 180 mg/dl). Kaplan-Meier estimates of graft survival was significantly lower at 5 years post transplant in the group with early IH > 0.5 mm (78% vs. 95%). Freedom from MACE or death was also lower in the group with early IH > 0.5 mm (52% versus 87%). Progression of angiographically evident transplant coronary artery disease (TCAD) within 5 years was greater in the group with early IH (70% versus 35%) and presence of hemodynamically significant lesions > 50% were twice as prevalent in the group of patients who demonstrated early evidence of IH on IVUS at one year post-transplant.

Conclusions: The presence of IH (> 0.5 mm thickness) identified by IVUS one year following cardiac transplantation is a surrogate marker for the eventual clinical outcome. This is an example of how the increased sensitivity of IVUS can be used to improve clinical predictions. This could have significant impact in the early identification of efficacy for new immunosuppressive agents.