Warranty period for low risk positron emission tomography for detection of cardiac allograft vasculopathy

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Background: Positron emission tomography/computed tomography (PET/CT) is increasingly being used as an alternative to invasive coronary angiography for the detection of cardiac allograft vasculopathy (CAV) in heart transplant patients. The appropriate screening interval for patients with low-risk testing is unknown.

Purpose: The purpose of the study was to determine the number of patients with an initial-low risk PET/CT who progressed to a high-risk result with annual screening and what patient characteristics were associated with this progression.

Methods: Patients with heart transplant with no history of CAV 2/3 by angiography, whose initial PET/CT scan was low-risk, and who had a repeat PET/CT as part of an annual screening program were included in the study. A low-risk PET/CT was PET CAV score 0/1, and a high-risk PET/CT was PET CAV score 2/3, as defined by a previously published and validated diagnostic algorithm. The primary outcome was the percentage of patients who progressed to a high-risk result.

Results: The median time between PET/CT scans was 382 days (IQ 365 – 443). Only 2/163 (1.2%) patients with initial PET/CAV 0 progressed to PET CAV 2/3 on their repeat study compared to 7/37 (19%) for those with PET CAV 1 (RR 9.16, 95CI 2.97 – 28.29). During the study period, there were 0 episodes of urgent revascularization and 1 elective revascularization.

Conclusions: The risk of developing PET CAV 2/3 in patients with an initial result of PET CAV 0 is low at one year and annual screening may be unnecessary. Conversely, in patients initially classified as PET CAV 1, the risk of progression to PET CAV 2/3 is high and more frequent screening may be indicated.