PROGNOSIS AND RADIATION DOSE OF ULTRA-LOW DOSE (ULD) STRESS-ONLY MYOCARDIAL PERFUSION SPECT IN PATIENTS WITH CHEST PAIN USING A HIGH-EFFICIENCY CAMERA

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Background: SPECT MPI provides valuable information about patients with chest pain (CP), but there is concern about its radiation dose and lengthy duration. New high-efficiency (HE) cameras and stress-first/stress-only (SF/SO) protocols both offer potential to reduce radiation and time. No previous study assessed outcomes and radiation dose of patients undergoing ULD HE-SPECT SO imaging.

Methods: 100 patients presenting to the ED with CP and candidates for SF MPI underwent injection of ~5 mCi of Tc-99m tetrofosmin at peak stress, with HE-SPECT supine and prone imaging. Images were reviewed by a nuclear cardiologist to determine need for rest imaging, performed only on patients with any abnormality on stress imaging. Patients were contacted 3 months after discharge and electronic medical records and the Social Security Death Index reviewed to evaluate need for re-evaluation for CP, additional imaging, or cardiac events.

Results: SO imaging was performed in 69 patients, in whom radiation dose was 0.99±0.18 mSv and test duration 117±23 min. 67 (97%) patients were free at 3 months of cardiac events, repeat hospital CP evaluation, and repeat imaging or stress testing; 2 patients re-presenting with CP were discharged without repeat testing. 1 year after discharge, all patients were living and without acute coronary syndrome.

Conclusion: HE-SPECT SO imaging can be performed in over 2/3 of CP patients without high probability of a perfusion defect, with excellent prognosis, dose of 1 mSv, and test duration <2 hours.