Prevalence and Predictors of Ischemia and Outcomes in Nondiabetic Patients Referred for Single Photon Emission Computed Tomography Myocardial Perfusion Imaging

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OBJECTIVE:

We sought to estimate the prevalence and predictors of significant scintigraphic evidence of ischemia and subsequent cardiac events over 12 months of follow up in a cohort of consecutive 250 stable non diabetic outpatients referred for single photon emission computed tomography myocardial perfusion imaging (SPECT MPI) over a period of 6 months in Alexandria Main University Hospital Nuclear Cardiology Laboratory.

METHODS AND RESULTS:

The study population ages ranged between 14 and 80 years with mean±SD 58.22±9.321 years, it included 194 males (77.6%). There were 55 asymptomatic patients (22%) and 48 patients (19.2%) with no previous history of IHD. 109 (43%) had normal resting ECG. The study was normal in 38 patients (15.2%).

On comparing perfusion defects detected by SPECT-MPI with anatomical lesions detected by invasive CA in same related vessels, there were all statistically significant in LAD, LCX and RCA lesions with p<0.001, p<0.001, p=0.002 respectively.

In our study, SSS was (13.41±11.885), SRS was (8.32±10.607). SSS was statistically related to age (P=0.036) and male gender (P=0.015), while SRS was statistically related to smoking and positive family history with P=0.001, p<0.001 respectively.

There was strong positive correlation between SSS and sudden cardiac death (p<0.001) and with MI (p=0.001) and with HF (p<0.001).

Also, there were statistically significant relation between atypical pain and sudden cardiac death (p<0.001).

Over the period of follow up, 41 patients (16.4%) had PCI, 18 patients (7.2%) had CABAG.
40 patients (16%) had sudden cardiac death, 63 patients (25.2%) had MI, 92 patients (36.8%) developed heart failure.

We found that lung uptake is the most predictive variable for MI (p=0.008) and also for stroke (p=0.001). HTN, SSS and typical pain have predictive values for sudden cardiac death with P=0.016, 0.033, and 0.039 respectively, while transient LV dilation is the most predictive variable for HF (p<0.001).

CONCLUSIONS:

SPECT MPI is a good tool for risk stratification. Semiquantitative parameters such as SSS, SRS are independent good predictors of cardiac death/nonfatal MI and HF. This stable outpatient SPECT MPI referral cohort had high rates of significant ischemia and low rates of early revascularization; with initial high cardiac events rates within a year.