Impact of myocardial perfusion scintigraphy on coronary revascularization in hospitalized elderly patients

Authors:
M Stalčič1, M Dolenc Novak1, N Jerman2, M Trampus2, B Guzic Salobir1, 1University Medical Centre of Ljubljana, Department for nuclear medicine - Ljubljana - Slovenia, 2University of Ljubljana, Faculty of Medicine - Ljubljana - Slovenia,

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Background: Myocardial perfusion imaging (MPI) plays an important role in selecting patients for invasive coronary angiography (ICA) and revascularization. Patients with abnormal stress MPI are at higher risk for future cardiac events and therefore have a greater benefit from ICA and potential revascularization. Referral to ICA after abnormal MPI has been shown to occur less often for elderly patients in ambulatory care setting. However, there is limited data about management of hospitalized elderly patients following MPI.

The purpose of this study was to evaluate how the MPI results influence referral rates for in-hospital ICA and revascularization in hospitalized elderly patients.

Methods: In the retrospective study, data of consecutive hospitalized patients with suspected CAD admitted to MPI from June 2014 to June 2017 were analysed. Patients were categorized into "elderly" (=75 years) and "younger" (<75 years) groups. The clinical characteristics and ICA and revascularization rates were identified by manually reviewing the patients' records.

Results: 276 patients with mean age 72.7 ± 11.9 years were studied. 136 patients were =75 years old (mean age 81.8 ± 4.5 years). Elderly patients had higher prevalence of women (58.8% vs. 40.7%, p=0.003) and arterial hypertension (89.2% vs. 79.7%, p<0.001) and were less likely to have history of smoking (4.0% vs. 20.0%, p<0.001) than younger patients. All patients underwent a 2-day stress/rest 99mTc tetrofosmin (Myoview, GE Healthcare) myocardial perfusion single photon emission computed tomography. MPI confirmed ischemia in 111 (40.2%) patients (42.1% younger vs. 38.2% elderly, p=0.509). Result of MPI had a significant influence on the decision for ICA (performed in 71 patients (63.9%) with ischaemia vs. 11 patients (6.8%) without ischemia, p<0.001). There were no significant differences in the referral rate for ICA between elderly and younger patients with ischemia (71.2% vs. 69.5%, p=0.848). In only 9 (12.6%) patients with ischemia (7 younger and 2 elderly) the ICA was normal. 35 patients with ischemia were treated medically after ICA. 27 (38%) patients (15 younger and 12 elderly) with abnormal MPI underwent coronary revascularization: 23 percutaneous coronary intervention and 4 coronary artery bypass surgery. There was no difference in the rate of revascularization between elderly and younger patients (40% vs. 38%, p=0.788).

Conclusions: MPI is an important predictive factor for the decision of the referral for ICA and revascularization in younger and elderly hospitalized patients. In our hospital, the elderly referred to MPI are treated the same as younger.