**Abstract: P287**

**HMPAO-Tc-99m cardiac SPECT - a method to detect ischemia in patients with refractory epilepsy?**

**Authors:**
M T Faria¹, A Oliveira¹, R Rego², H Rocha², F Sa², R Farinha³, J Pereira¹, F Rocha-Goncalves⁴, H Goncalves⁵, E Martins⁴, ¹Centro Hospitalar Universitário de São João, E.P.E., Nuclear Medicine Department - Porto - Portugal, ²Centro Hospitalar Universitário de São João, E.P.E., Neurophysiology Unit, Neurology Department - Porto - Portugal, ³Centro Hospitalar Universitário de São João, E.P.E., Clinical Pathology Department - Porto - Portugal, ⁴Faculty of Medicine University of Porto, Medicine Department - Porto - Portugal, ⁵Faculty of Medicine University of Porto, Department of Community Medicine, Information and Health Decision Sciences; CINTESIS - Porto - Portugal,

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Background/Introduction: Our parallel work shows high correlation between HMPAO-Tc-99m (HMPAO) myocardial SPECT and Tetrofosmin-Tc-99m myocardial perfusion scintigraphy (MPS). Hence, it might be possible to assess myocardial perfusion with HMPAO. A subset of patients with chronic refractory epilepsy shows elevated Troponin I and ST-T changes with seizures, possibly meaning myocardial ischemia. No previous work has assessed myocardial perfusion during seizures using Nuclear Medicine.

Purpose – To evaluate HMPAO myocardial distribution in the left ventricle of patients with chronic refractory epilepsy.

Methods – We prospectively evaluated (Jun.2014 – Aug.2018) patients with chronic refractory epilepsy referred to an ictal and/or interictal brain perfusion scintigraphy (BPS) and admitted to the Epilepsy Monitoring Unit. Cardiac SPECT images were acquired immediately following BPS with 555 MBq HMPAO, i. v., and processed with cardiac dedicated software.

Demographic and clinical data were collected. A subset of patients had serum high sensitivity Troponin I (hs-cTnI) measured, before and after the first recognized seizure. Increases above 50% of the basal level were considered significant.

Statistical significance was set at 0.05.

The study was approved by our institution Ethics Committee. All patients gave their informed consent.

Results – 89 cardiac SPECTs with HMPAO (46 ictal; 43 interictal) in 88 patients. Median age was 42 years (min-max, 17-63) in the ictal group and 36 years (min-max, 16-73) in the interictal group. The number of interpretable SPECTs was 36 and 28 in the ictal and interictal groups, respectively.

Comparing both groups (ictal and interictal): 30.6% vs 21.4% of the patients had cardiovascular risk factors (CRF) - without known cardiovascular disease -, and 34% vs 25% had defects in HMPAO myocardium uptake. These differences were not statistically significant, as were not the differences in the number/extension of the defects, which showed no significant association with sex, age, CRF, epilepsy duration or seizure frequency, in either group.

In the ictal group, no significant association was found of the number/extension of defects with seizure semiology, post-ictal generalized EEG suppression or seizure duration.
Patients with extra-temporal (ET) seizure onset in the ictal group had a significant (p=0.047) association with larger defects, and a tendency to have more defects (p=0.143).

We found no association between hs-cTnI measurements (n=22) and the number/extent of defects.

Conclusion – Both ictal and interictal groups have a considerable number of HMPAO uptake defects in the myocardium. These results point to chronic abnormalities since we found no significant differences in defects’ characteristics between the two groups. The hypothesis of abnormal myocardial perfusion in patients with refractory epilepsy, which might be more severe in patients with ET seizure onset, should be confirmed with other methodologies.