

of 2.5 mm diameter (sentinella portable gamma camera). The BD scintigraphy criteria are established as: absence of tracer uptake in cerebral cortex and posterior fossa. Any uptakes in said regions or images of doubtful interpretation are considered not compatible with BD. The results of the CPS are compared with the TD. The EEG is not taken into account because it has very few cases. **Result:** The CPS was positive for BD in 41 of the 46 patients studied, 41 scintigraphy's were positive with other positive auxiliary tests (EEG or Doppler). Of the 5 negative scintigraphy's 4 were clearly negative and 1 was doubtful that it was considered negative or non-diagnostic. No patient presented two different negative ancillary tests for brain death. **Conclusion:** Cerebral perfusion scintigraphy with a portable gamma camera is emerging as a reliable, useful and easy to perform test, avoiding patient displacement.

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Regional Cerebral Blood Flow Correlates of Formal Education and Socioeconomic Level in Cognitively Normal Non-elderly Subjects.

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Introduction: Evidence support that formal education can influence brain activity as measured by functional imaging in elderly subjects. The protective effects of education on dementia are well known. Education is an essential condition always taken in account in neuropsychological evaluations, but the same situation is not so clear in imaging studies. The effect of socioeconomic level is even more controversial. The objective is to assess correlations of the regional cerebral blood flow (rCBF) measured by SPECT with formal education and socioeconomic level in cognitively normal non-elderly subjects.

Methodology: 41 normal subjects (19-65 ys, mean 37.5, 22 male) evaluated by 99mTc-ECD SPECT in a Mediso Nucline Spirit DH-V dual-head gamma camera were included. Acquisition was performed in 128 steps 60 minutes after injection in a 128x128 matrix with a pixel size of 2.66 mm. Attenuation was corrected using first-order Chang with a 0.12 cm⁻¹ coefficient. Iterative OSEM reconstruction with 10 subsets and 2 iterations was carried out after Butterworth filtering (order 10, 0.20 cut-off frequency). Intellectual level was evaluated measuring abstract thinking with the analogies test. Subjects scored 12 to 24 (mean 19.2) for a normal limit of 11. Years of formal education considering an upper limit of 21 (university post-graduate) scored 9 to 21 with a mean value of 16.8. All subjects completed school and only 6 did not complete high school. The Socioeconomic Level Index commonly used in our country (INSE) classified the sample in 4 subjects of low level, 17 of medium level and 20 of high level. Regression analysis was performed in SPM8 using age and gender as covariates. Correlations with years of formal education were tested first and then INSE values were entered to the model. Voxels were interrogated at p<0.001 uncorrected and cluster level was extended to p<0.05 uncorrected. **Results:** Positive correlation with formal education was found in left anterior lateral and inferior temporal cortex (kE=678, p=0.012 FEW-corr), a region implicated in semantic knowledge and so-

cial-emotional information. Negative correlation was found in right dorsolateral prefrontal cortex (kE=294, p=0.033 unc). No significant correlations with INSE were detected. **Conclusion:** Formal education can condition rCBF distribution in cognitively normal subjects even with relatively high intellectual level. No changes associated with socioeconomic level were detected, although the proportion of subjects in the low level was small, potentially affecting the sensitivity of the analysis. The level of formal education should be taken in account when comparing groups of SPECT images.

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Left Temporal Hypometabolism in FDG-PET underlines Cognitive Reserve Hypothesis in Frontotemporal Dementia

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Introduction: Frontotemporal lobar degeneration as the second most cause of presenile dementia shows a characteristic pattern of hypometabolism in frontal and temporal regions in [¹⁸F]-fluorodeoxyglucose positron-emission-tomography (FDG-PET). In ageing and dementia, the concept of cognitive reserve as a mediating factor between neuronal injury and clinical symptoms has been proposed for many years. Years of education (YoE) has been demonstrated as a proxy of cognitive reserve in Alzheimer's disease. We aimed to test how the paradigm of cognitive reserve is reflected in FTD. **Subjects and methods:** FDG-PET of 93 subjects (age 68 ± 9 years) with FTD were analysed retrospectively. Mini-mental-state-examination (MMSE) and YoE were recorded. A voxel-wise regression analysis was used to identify regional glucose metabolism associated with declining MMSE. Individual FDG-PET values were extracted from the resulting significant cluster (FWE correction, p < 0.05). The residuals of the partial correlation between FDG-PET and MMSE were correlated with YoE. **Results:** Cognitive deterioration (MMSE) was only correlated with left temporal hypometabolism whereas the contralateral temporal lobe and bilateral frontal cortices did not indicate significant associations. Regression analysis with values deriving from the left temporal cluster indicated a significant positive association with MMSE (β = 0.62, p < 0.001). The residuals of the correlation of FDG-PET and MMSE showed a significant correlation with the YoE (β = 0.29, p = 0.005). **Conclusion:** Cognitive decline is mainly associated with left temporal hypometabolism in FTD. Cognitive reserve expressed by a higher level of education is also present in FTD and needs to receive attention as a potential modifying factor in prevention and treatment of FTD.