

Poster presentation

The contribution of brain perfusion SPECT and magnetic resonance imaging in early diagnosis of neurodegenerative dementia

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from International Society on Brain and Behaviour: 3rd International Congress on Brain and Behaviour Thessaloniki, Greece. 28 November – 2 December 2007

Published: 17 April 2008

Annals of General Psychiatry 2008, **7**(Suppl 1):S183 doi:10.1186/1744-859X-7-S1-S183

This abstract is available from: <http://www.annals-general-psychiatry.com/content/7/S1/S183>

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Background

To compare the diagnostic value of the perfusion pattern of SPECT and atrophy pattern of MRI for neurodegenerative dementia and its early detection we studied patients with different types of dementia.

Materials and methods

107 patients underwent MRI and SPECT using HMPAO at the Department of Radiology and Nuclear Medicine of AHEPA University Hospital. Our patients based on clinical diagnosis were categorized into 3 groups: a) Neurodegenerative dementia (ND) consisted of 61 patients (mean age 71 ± 9) with Alzheimer's disease (AD), frontotemporal dementia (FTD), dementia with Lewy bodies (DLB) and mixed dementia, b) Vascular cognitive impairment VCI consisted 27 patients (mean age 70 ± 7), and c) Normal group included 19 persons (mean age 64 ± 7).

MR images and SPECT images were visually evaluated and grouped also into 3 categories: Neurodegenerative (ND) pattern, vascular impairment (VI) pattern and normal pattern.

Results

The sensitivity, specificity, positive and negative predictive value for MR imaging were 72%, 98%, 97% and 77% and for SPECT 98%, 93%, 95% and 97% respectively. The sensitivity and specificity of visually evaluating MR images in the cases with mild stages of the disease was 47% and 95%

and for SPECT 93% and 95% respectively. MRI helped us in detecting microangiopathies in our patients by showing white matter hyperintensities which can not be detected by SPECT.

Conclusions

We conclude that visually evaluating of MR images does not contribute to the early detection of neurodegenerative dementia in contrast to SPECT but rather to distinguish vascular impairments. Hence the physician will need to compound these tools to obtain more accurate diagnosis.