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モーニングセミナー　IA8

日　時：　2007 年 10 月 18 日(木)　07:30～08:30

会　場：　大阪国際会議場 10F　Hall G (Room 1004＋Room 1005)

テーマ：　Early Diagnosis of Dementia and SPECT

座　長：　ほうゆう病院院長 小阪憲司先生　Kenji Kosaka M.D. Hou-Yuu Hospital

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演　題：　Dynamic Power Neuropathology of Alzheimer's Disease with the Brain Bank for Aging Research Project, Tokyo

演者2：　埼玉医科大学国際医療センター　核医学科　松田博史先生
Hiroshi Matsuda M.D.　Department of Nuclear Medicine, Saitama Medical University International Medical Center

演　題：　The role of SPECT and MRI in Alzheimer's disease

共　催：富士フイルム RI ファーマ株式会社　FUJIFILM RI Pharma Co., Ltd
日本脳神経核医学研究会　The Japanese Council of Nuclear Neuroimaging

国際学会のため、英語にて開催します。

IA-8 – FUJIFILM RI Pharma Co., Ltd. and The Japanese Council of Nuclear Neuroimaging Satellite Symposium – Early Diagnosis of Dementia and SPECT

Kenji Kosaka M.D.
Hou-Yuu Hospital, Yokohama City University, Yokohama City, Japan

It's very important to diagnose dementia at the early stage. Brain perfusion SPECT imaging and its statistical analysis are useful for the early diagnosis of dementia Dr.Matsuda and FUJIFILM RI Pharma Co., Ltd. developed the software toidentify areas of reduced blood flow in the brain.
Dr. Matsuda will talk about the up-to-date software and MRI imaging analysis.
Dr. Murayama will talk about his neuropathological research and the usefulness of this software.

IA-8:1
Dynamic Power Neuropathology of Alzheimer's Disease with the Brain Bank for Aging Research Project, Tokyo
Shigeo Murayama M.D.Ph.D.
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There is a continuous spectrum between physiological aging and dementia, both in cross sectional and longitudinal clinical studies. Since morphological pathology can only evaluate the brain at one specific end point, serial clinical and radiological evaluations are imperative for the understanding of Alzheimer's disease. We employed the term, dynamic neuropathology, originally implying functional imaging, to represent the methodology to speculate in situ neuropathology of living patients, based on the accumulated data of consecutive autopsy cases. In situ pathology is available by biopsy or operation of general organs, but usually not for the brain. Power neuropathology is defined as non- selective evaluation of a large number of autopsy cases from a general geriatric cohort, to elucidate the correlation between morphological alterations of the brain and clinical phenotypes. Its most fruitful achievement is Braak's staging paradigm of Alzheimer neurofibrillary tangles. The Brain Bank for Aging Research (BBAR) Project is the combination of prospective longitudinal clinical studies and retrospective neuropathological evaluations. Patients of memory clinics are screened with neuropsychological tests, as well as VSRAD and eZis 3.0 and cases suspected of degenerative dementia are further evaluated with CSF biomarker and PET scans. These cases are recruited to autopsy at death for power neuropathology.

IA-8:2
The Role of SPECT and MRI in Alzheimer's disease
Hiroshi Matsuda M.D.
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With increasing life expectancy in much of the world, the number of elderly people at risk of developing dementia is growing rapidly, and Alzheimer's disease (AD) remains the most common cause of dementia in all age groups. Recent medications like cholinesterase inhibitors have turned out to be able to delay the progression of AD.
Moreover AD patients in whom the start of cholinesterase inhibitors therapy is delayed demonstrate reduced benefits as compared with those seen in patients starting therapy early in the course of AD. This fact has shifted the focus of present studies on AD toward earlier diagnosis and longitudinal investigations to assess the value of therapeutic interventions. Biomarkers are likely to be very important in these studies on AD. A clinical diagnosis of AD is inaccurate even among experienced investigators in about 10% to 15% of cases, and biomarkers might improve the accuracy of diagnosis. For the development of putative disease-modifying drugs for AD, biomarkers might also serve as a surrogate endpoint of disease severity. When used in this way, sample sizes of clinical trials might be reduced, and a change in biomarker could be considered supporting evidence of disease modification. PET, single photon emission computed tomography
(SPECT) and magnetic resonance imaging (MRI) have been used as these imaging biomarkers. In Japan FDG-PET has not yet been accepted for reimbursement for the detection of dementia in the health insurance system, and more widely available brain perfusion SPECT and MRI have been mainly used for the imaging diagnosis of AD.
Perfusion reductions in the parieto-temporal association cortex are recognized as a diagnostic pattern for AD. Outstanding progress in the diagnostic accuracy of these modalities has been achieved using statistical analysis on a voxel-by-voxel basis after anatomical standardization of individual scans to a standardized brain-volume template instead of visual inspection or a volume of interest technique. In a very early stage of AD,
this statistical approach revealed gray matter loss in the entorhinal and hippocampal areas and hypoperfusion in the posterior cingulate cortex and precuneus. This statistical approach also offers prediction of conversion from mild cognitive impairment (MCI) to AD. Presence of hypometabolism or hypoperfusion in parietal association areas and entorhinal atrophy at the MCI stage has been reported to predict rapid conversion to AD.