

Quantifying Glucose Hypometabolism In Alzheimer's Disease: An 18F-FDG PET/CT Study; With fMRI Updates On The Assessment Of Cognitive Impairment

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Dementia is a clinicopathological diagnosis, which consists of several different clinical subtypes, the commonest one being Alzheimer's disease (AD). Clinically, the patients present with a progressive decline in cognitive function and the hallmark of AD is the histological detection of beta amyloid plaques ($A\beta$) by brain biopsy or at autopsy. Diagnostic imaging can play a role in the management of dementia by providing structural and functional information to exclude possible secondary causes and offer additional information to differentiate the subtypes, especially in atypical cases. The utility of functional imaging in clinical practice, such as Tc99m-HMPAO SPECT and 18F-FDG PET/CT as well as Amyloid imaging PET/CT, is gaining momentum as a non-invasive biomarker to provide better diagnostic accuracy. Although Amyloid PET/CT imaging has not been widely used in Asian countries, it is useful to know about this type of advances in imaging that have been utilized in Europe and the United Kingdom to aid in improved specificity for detecting $A\beta$ plaques. Emphasis will be given on clinical indications, limitations and image interpretation techniques. A brief introduction to the role of functional magnetic resonance imaging (fMRI) for assessment of cognitive function will also be provided.