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### Neuroimaging in Geriatrics

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Currently, neuroimaging can be divided, in broad terms, into structural imaging i.e. what the brain physically looks like and functional imaging, i.e. how the brain is working. It could be argued that application of these techniques to the clinical practice of old age psychiatry has lagged behind their use in other medical specialties. This is due to a number of reasons, such as limited access, availability and cost. In addition, there has been a tendency to shy away possibly because of limited formal training in interpretation of brain scans, and for radiologists to produce scan reports which may lack relevance to clinical psychiatry.

When should a scan be performed? The threshold for performing a scan is difficult to determine and no clear consensus exists. Nevertheless, there is a general shift towards the view that all patients with dementia should be scanned at least once during their illness. If scanning is combined with accurate clinical information, it offers the highest standard of diagnostic accuracy currently available. Ultimately, techniques such as MRI and CT have an unassailable role in the diagnosis of dementia because no combination of first line clinical and laboratory findings (which exclude imaging) can identify all causes, particularly those which may be reversible or treatable. Traditionally, the use of structural imaging in the primary degenerative dementias has been used to exclude other conditions. Recently the emphasis has shifted to identifying changes consistent with the underlying type of dementia.

Functional imaging now offers essential complementary information in exploring age-related diseases. In the future, combined structural and functional imaging may well be shown to improve diagnostic discrimination and provide further insights into the biological basis of dementias, the nature of their symptoms and the relative contribution of different pathological processes that underpin cognitive impairment. Increasingly, as further therapeutic options become available and imaging techniques become more able to provide useful diagnostic and prognostic information, structural and functional neuroimaging will become an important part of the clinical work-up in psychiatry.

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