

Figure 1 Hippocampal atrophy in an AD patient  
a) CT axial and b) coronal images

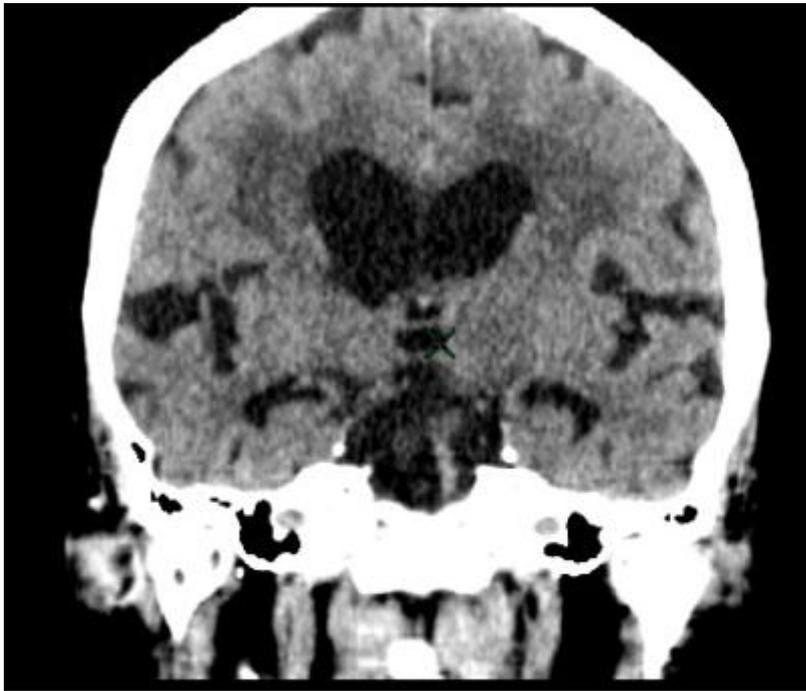


Figure 1 c

c) medial temporal lobe atrophy on MRI (not the same patient)

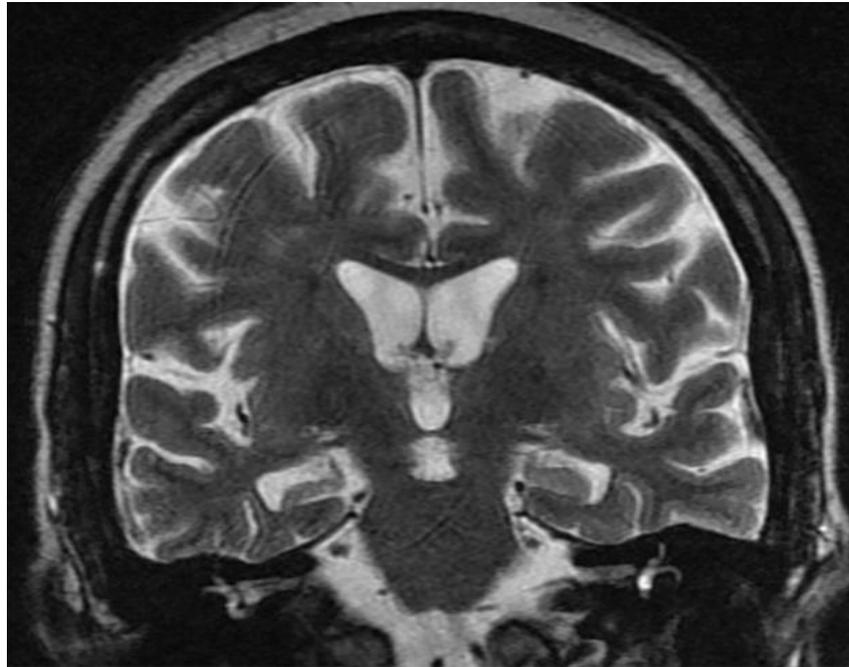


Figure 2 a. DTI data set superimposed on Structural image of the brain in 3 orthogonal planes demonstrating colour coded white matter tracts. Blue colour correlate to the tracts in the cranio-caudal direction, red in the transverse direction and green in the antero-posterior direction. (Images kindly prepared by Dr. Gordon D Waiter)

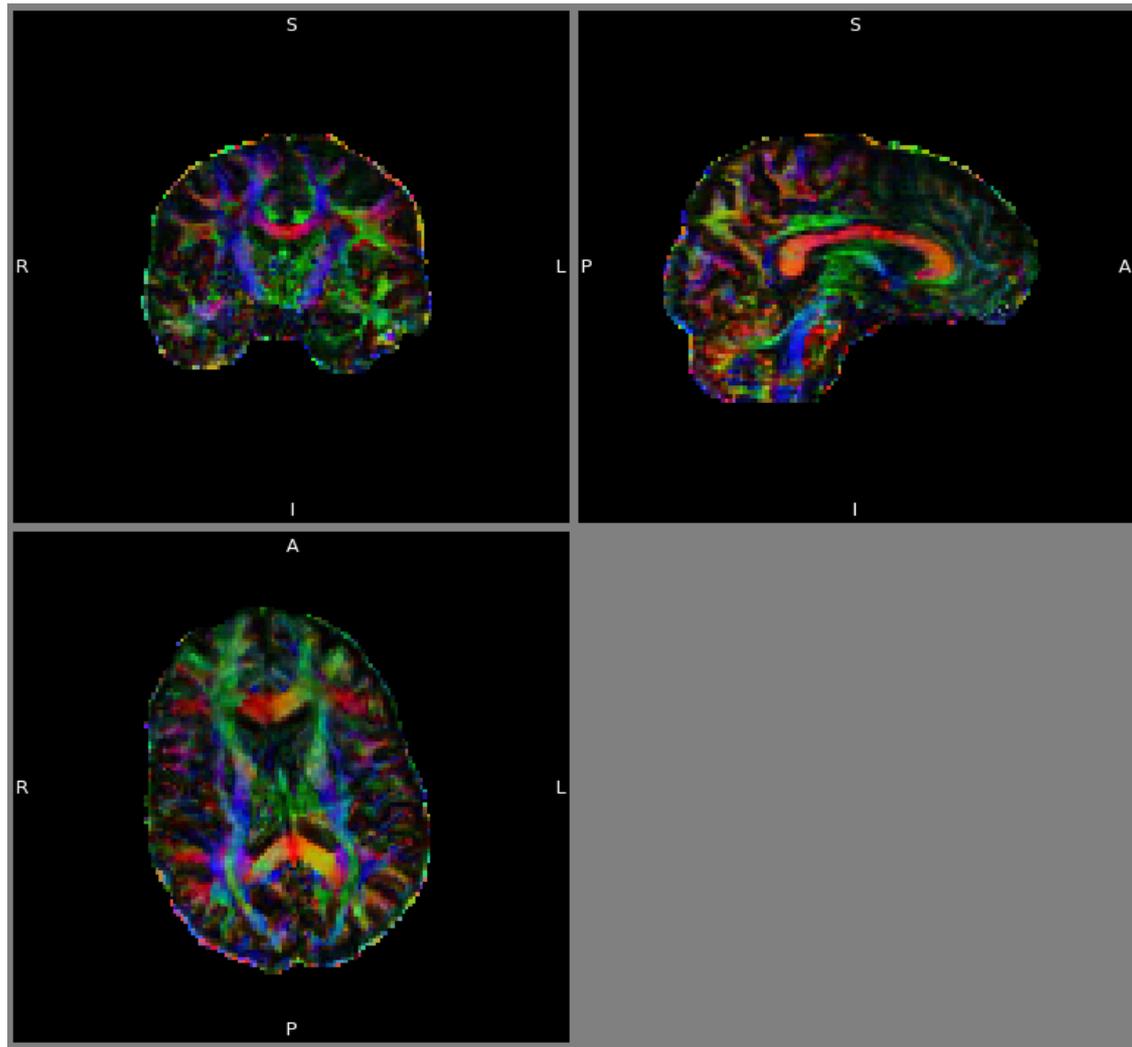
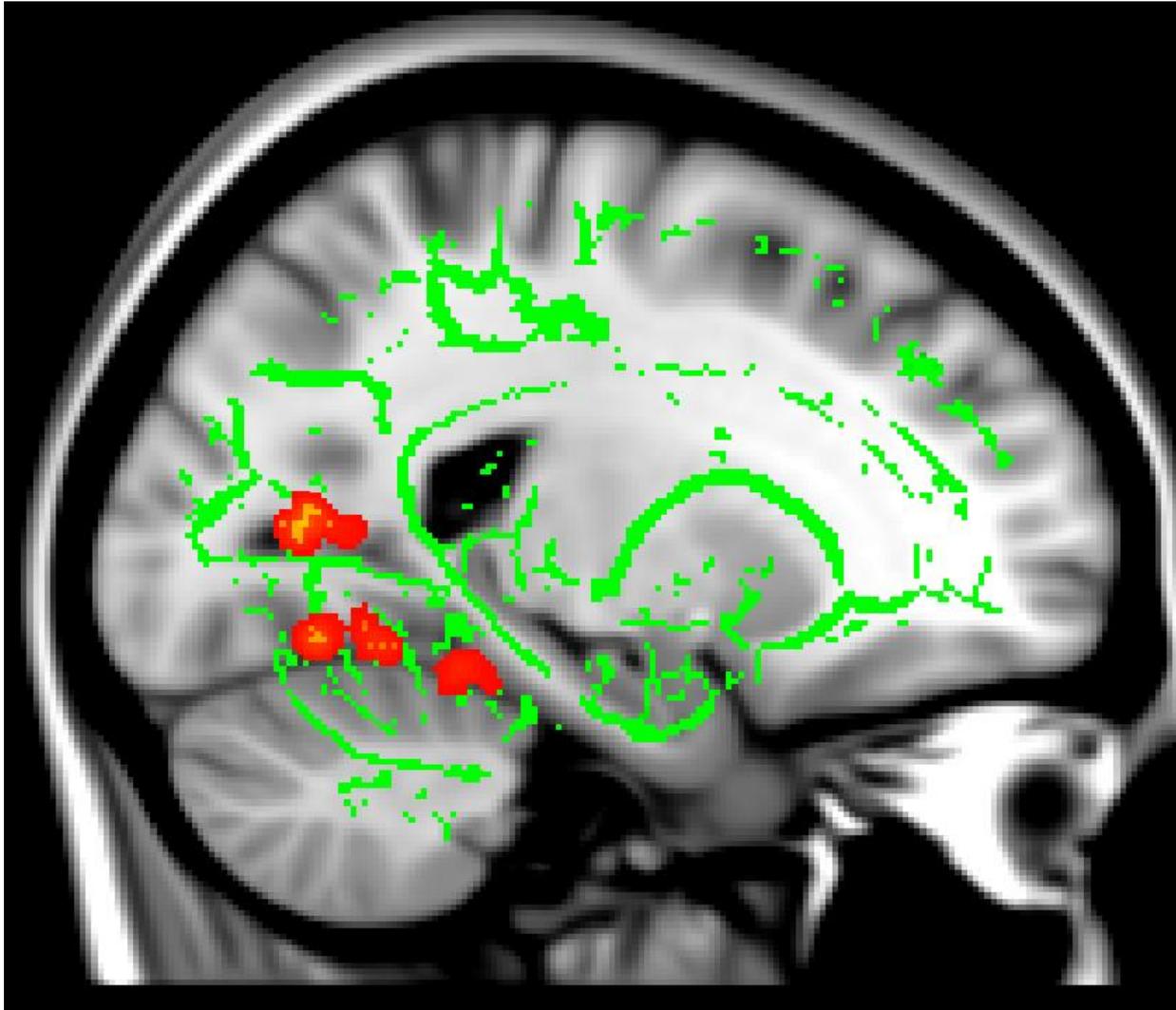


Figure 2 b. DTI data of white matter tracts (green) superimposed on T1 image demonstrating statistically significant difference in fractional anisotropy in the fornix (orange areas) compared to the rest of the brain in a subgroup of patients.(Images kindly prepared by Dr Gordon D Waiter)



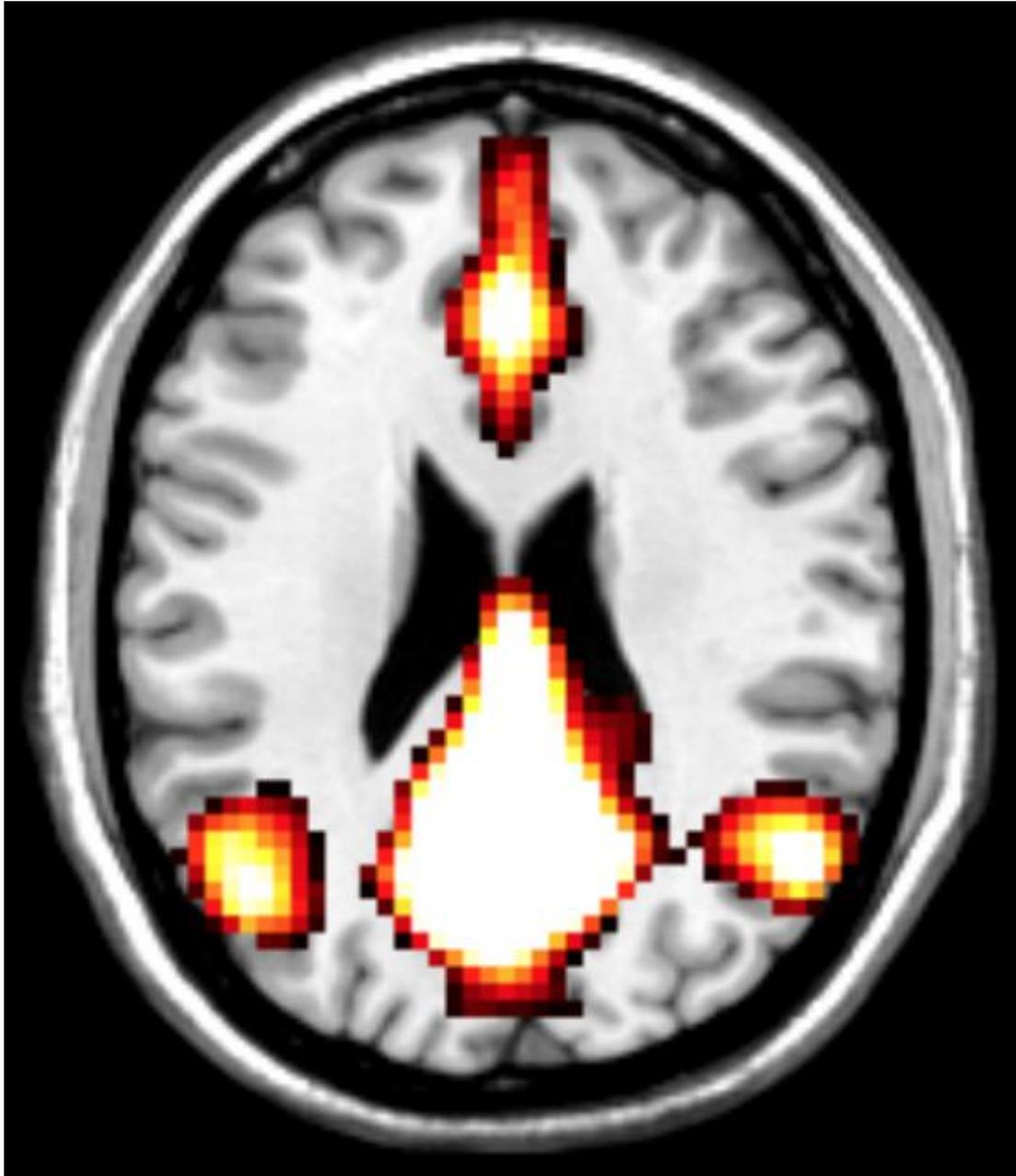


Figure 3. Default mode network, areas active during resting wakeful state. Resting state fMRI images using BOLD technique. Typical areas involved include the medial prefrontal cortices, posterior cingulate, ventral precuneus and parts of parietal lobes. (Images kindly prepared by Dr. Michael Stringer)

Figure 4

a) HMPAO SPECT in normal control subject demonstrating normal almost symmetrical perfusion pattern

b) HMPAO SPECT in AD parametric images demonstrate bilateral reduction in perfusion in the temporal lobes especially in the medial temporal regions up to 2 (green) and 3 (blue) standard deviation (Images kindly prepared by Ms Lesley Lovell, Senior technician)

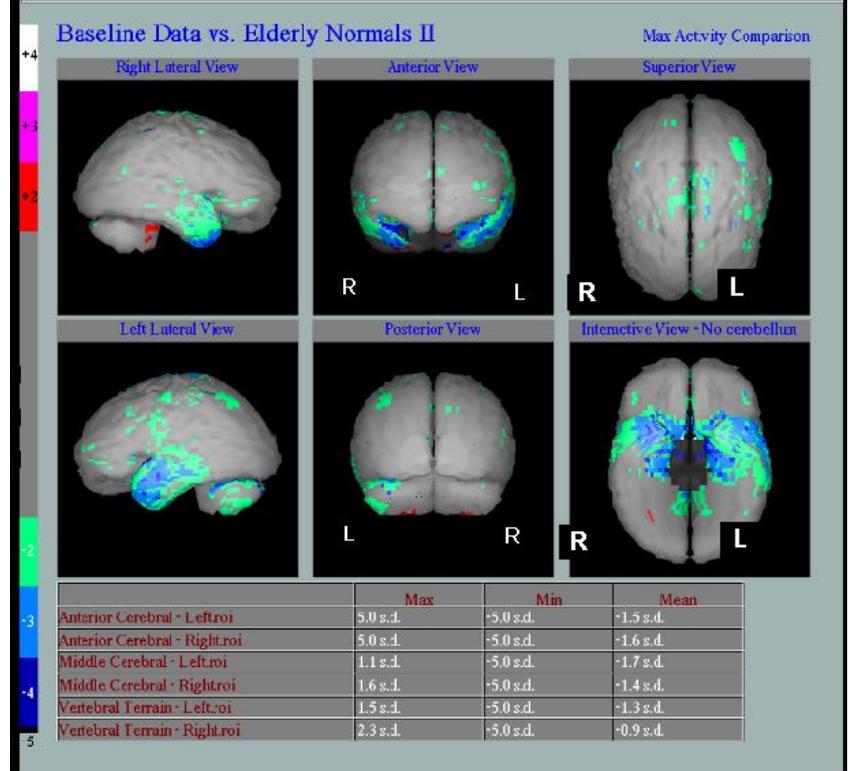
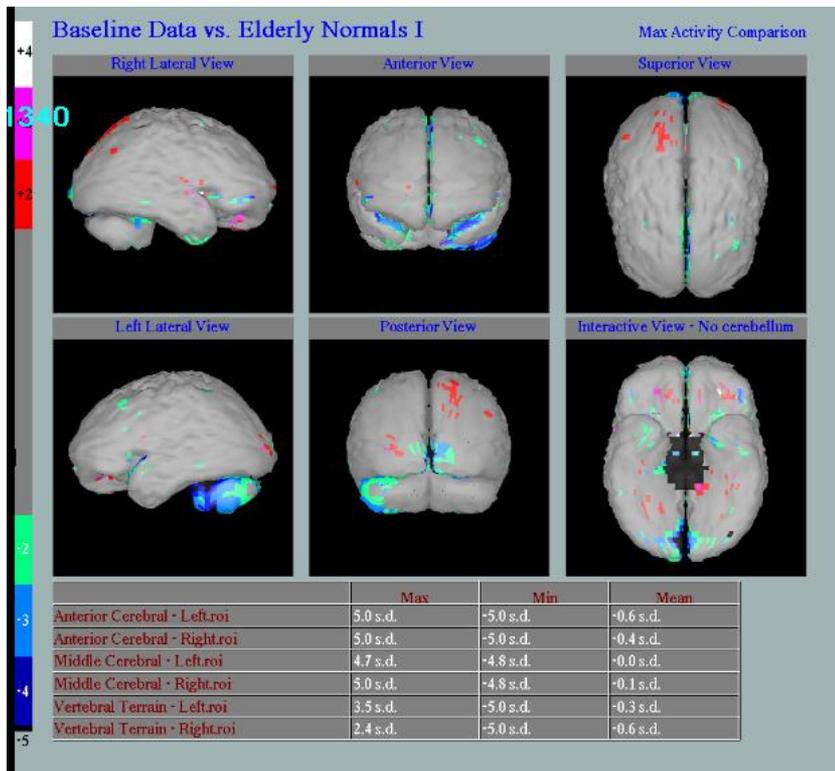


Figure 5

HMPAO SPECT in a patient with mixed vascular disease and AD. a) Shows reduced perfusion in both the frontal and parietal lobes, especially on the left. b) Parametric images providing an overall view. There was hippocampal atrophy on CT.(Images kindly prepared by Dr Fergus McKiddie)

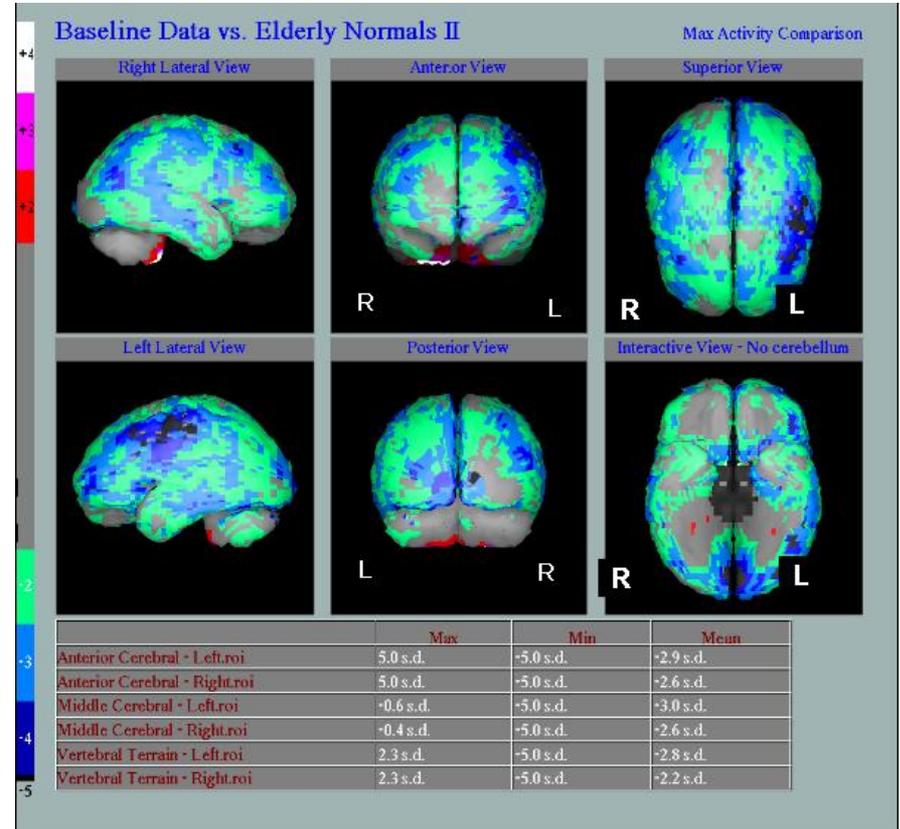
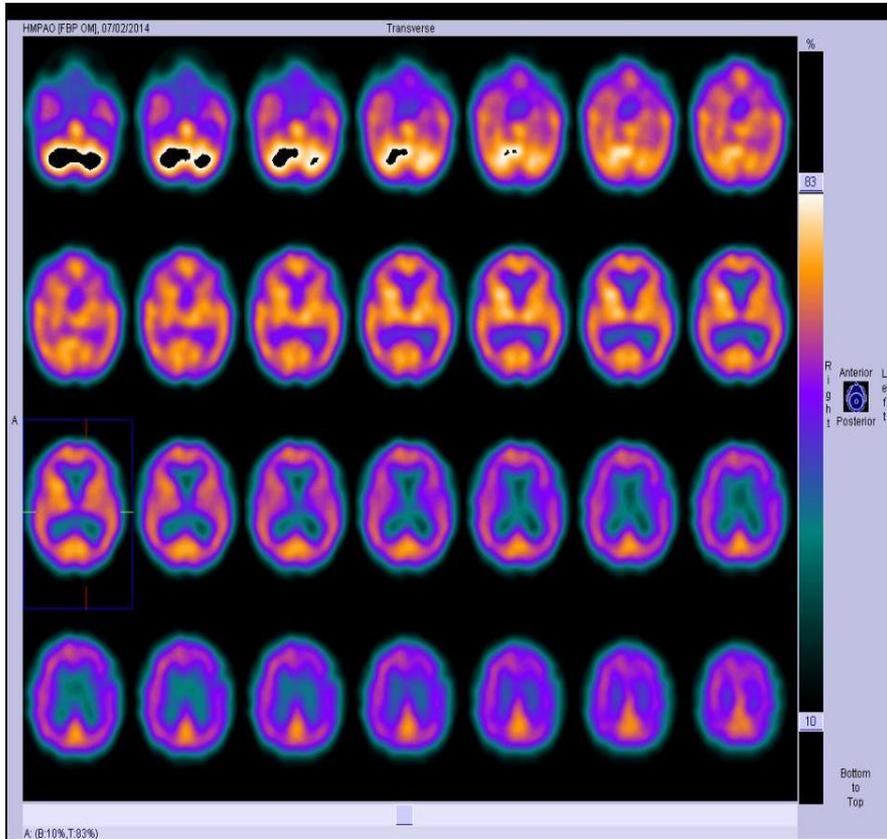


Figure 6. CT and MRI images demonstrating structural changes secondary to cerebral small vessel disease.

- a) axial image of CT brain demonstrating periventricular white matter low attenuation changes
- b) and c) the same seen as periventricular white matter high signal areas on FLAIR and T2 MRI

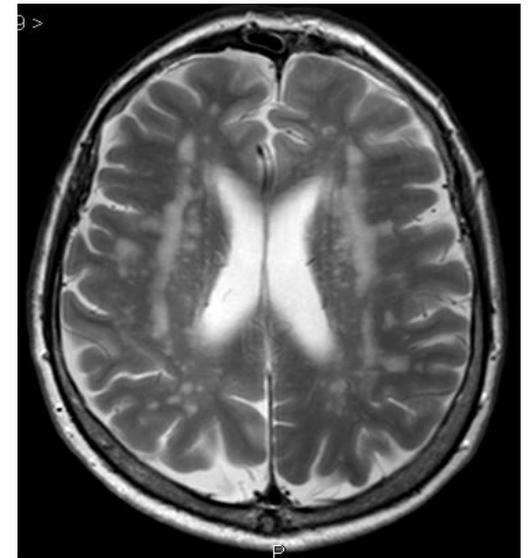
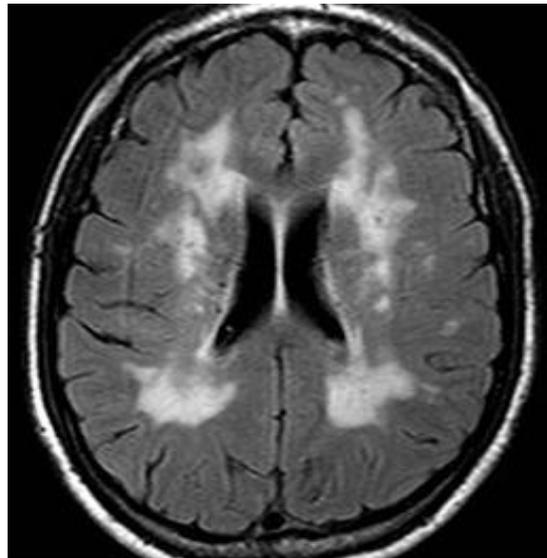


Fig 6 contd. d) Prominent perivascular spaces typically seen in the basal ganglia and e) centrum semiovale.

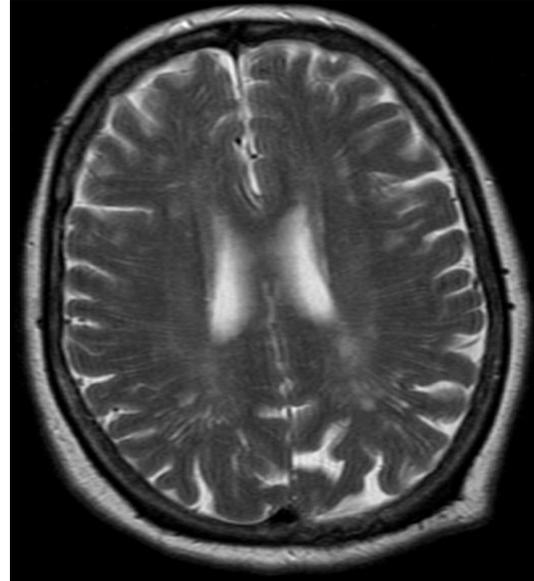
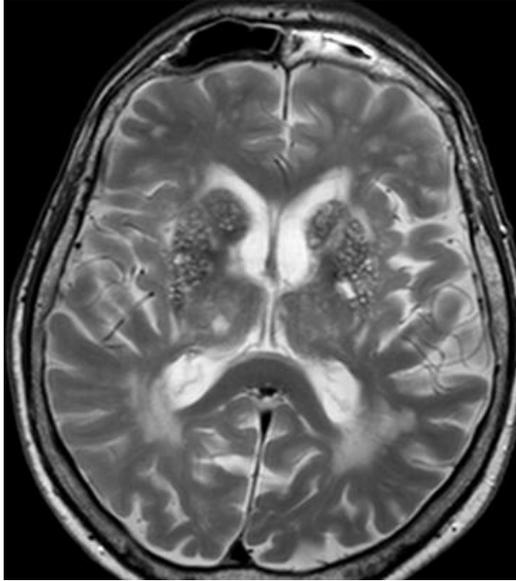


Fig 6 contd. f) focal lacune, a CSF filled space, sequelae of an old lacunar infarct in the right thalamus on axial T1 image and g) left frontal lobe on FLAIR (usually with a rim of high signal differentiating it from a PVS) and h) Cerebral microhaemorrhages, seen here as focal rounded black/low signal foci in the white matter of both frontal lobes on T2\* gradient echo MRI

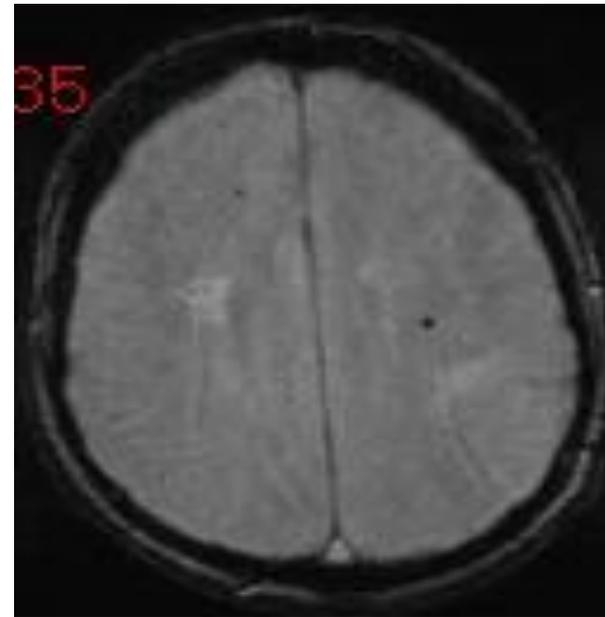
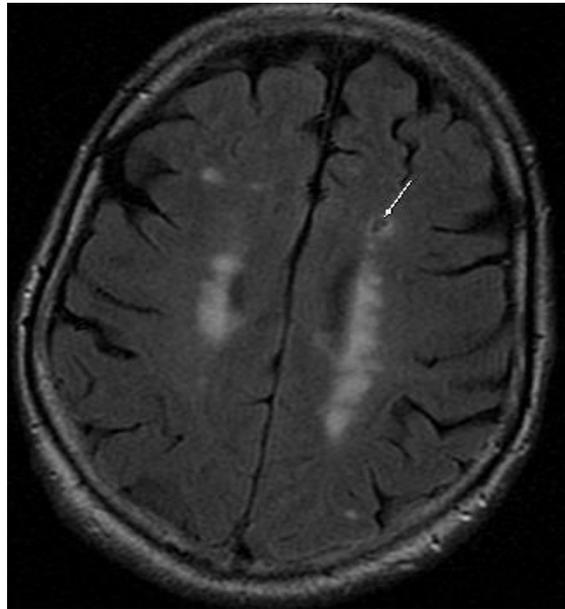
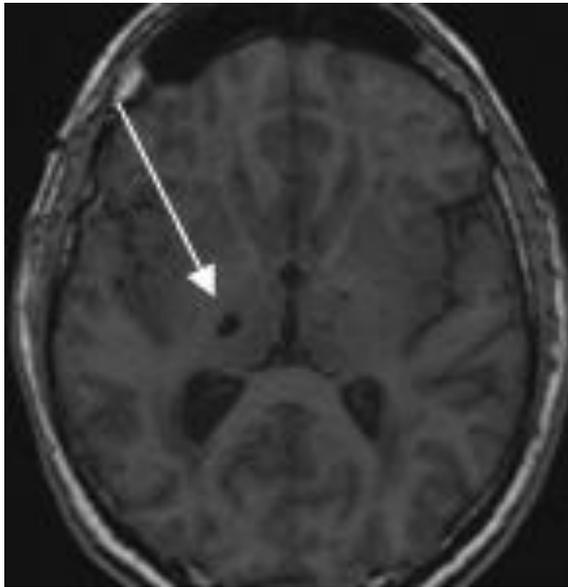


Figure 7

- a) HMPAO SPECT in a pure cerebral vascular disease patient without AD
- b) Note normal hippocampal volumes in the pure cerebral vascular disease patient on CT (Images kindly prepared by Ms Lesley Lovell and Dr Fergus Mckiddie, clinical scientist)

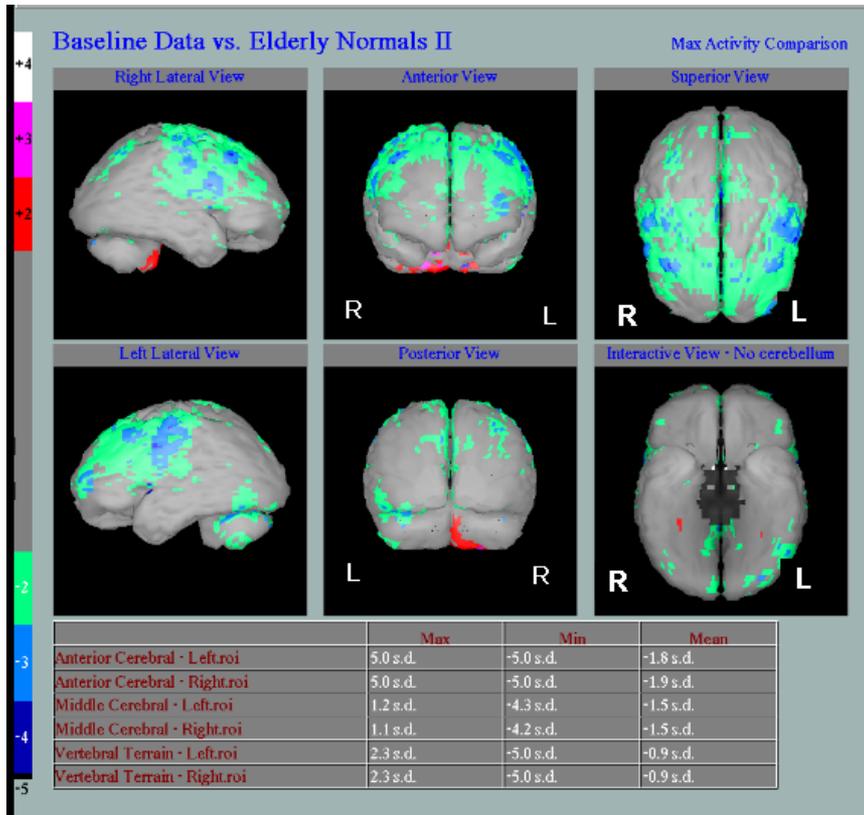


Figure 8 .

FP-CIT a) normal example symmetrical uptake in the caudate heads and putamen bilaterally b) absent uptake in the putamen in a patient with LBD

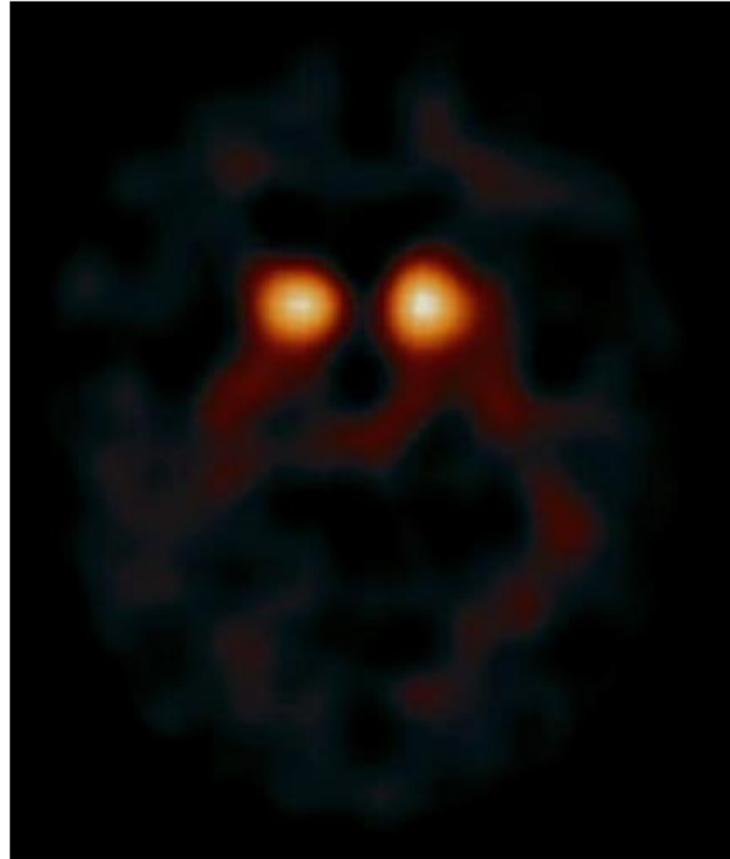
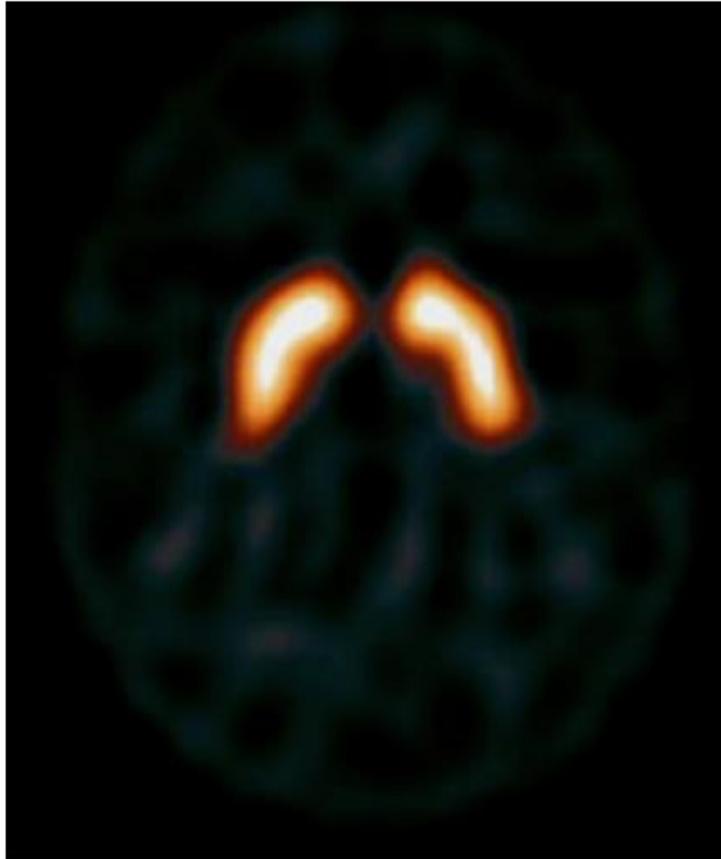
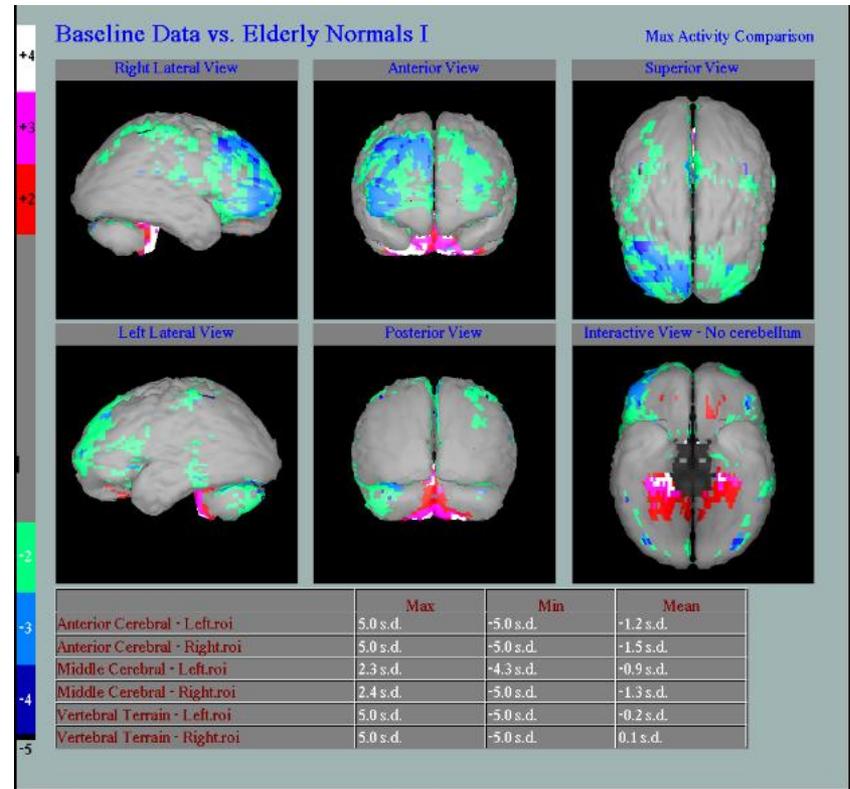


Figure 9

CT showing atrophy in a) asymmetric right frontal lobe atrophy in FTD  
 b) HPM AO SPECT in the same patient (Images kindly prepared by Ms Lewley Lovell, and Dr. Fergus Mckiddie)



## Table . causes of dementia and dementia syndromes

Types of dementia
<b>Primary dementias</b>
Alzheimer's disease
Late-onset AD – most common form 60-70% of all dementias
Early-onset AD – under 65 years of age, Chromosome 14 implicated, Down's syndrome
Familial AD – inheritable form present in at least 2 generations within families
Dementia with Lewy bodies
Frontotemporal dementia
Mixed dementia –more than one form of pathology for e.g., Lewy bodies with AD
<b>Less common forms</b>
Parkinson's disease
Progressive supranuclear palsy
Huntington's disease
<b>Secondary dementias</b>
Vascular/multi infarct dementia
Vascular with AD
Creutzfeldt-Jakob disease
Intracranial mass lesions
Normal pressure hydrocephalus
Subdural haematomas
Trauma
Infections – primarily HIV,
Alcohol
<b>Other documented causes</b>
Vitamin deficiencies- Vitamins E, B and folic acid are implicated
Medications
Other causes like depression