SPECT and PET imaging in dementia

Dementia Imaging Meeting, Cardiff 2012

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Question to be answered

• Which dementia?
Question to be answered

• Which dementia?
  • Alzheimer’s (~60%)
  • Vascular (~20%)
  • Lewy body (~15-20%)
  • Fronto-temporal (~1%)
Question to be answered

- Which dementia?
  - Alzheimer’s (60%)
  - Vascular (~20%)
  - Lewy body (~20%)
  - Fronto-temporal (1%)

- ? Dementing or worried well
• MRI/CT for subcortical vascular changes and SOL.
NICE Guidelines Number 42
Dementia: November 2006

- MRI/CT for subcortical vascular changes and SOL.
- HMPAO SPECT to help differentiate Alzheimer’s, vascular, and fronto-temporal dementia.
NICE Guidelines Number 42
Dementia: November 2006

• MRI/CT for subcortical vascular changes and SOL.
• HMPAO SPECT to help differentiate Alzheimer’s, vascular, and fronto-temporal dementia.
• FDG PET if HMPAO SPECT is not available to help differentiate vascular, and fronto-temporal dementia.
• MRI/CT for subcortical vascular changes.
• HMPAO SPECT to help differentiate Alzheimer’s, vascular, and fronto-temporal dementia.
• FDG PET if HMPAO SPECT is not available to help differentiate vascular, and fronto-temporal dementia.
• $^{123}$I-FP-CIT (DaTSCAN) or $^{18}$F-DOPA for suspected dementia with Lewy bodies.
### NICE – Functional Imaging Agents

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<thead>
<tr>
<th>SPECT (rCBF)</th>
<th>PET (metabolism)</th>
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Orbital-frontal (behaviour)
Dorsal-lateral frontal (executive)

Orbito-frontal (behaviour)
Medial-frontal
(apathy)
Non-dominant parietal (visuo-spatial)

Dorsolateral (executive) frontal

Orbito-frontal (behaviour)
Dominant parieto-temporal (language)