The phenotype of mild cognitive impairment due to Lewy body disease
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Aims and Hypothesis
The Newcastle LewyPro Study is an ongoing prospective study which aims to characterise the clinical and biomarker profile of prodromal dementia with Lewy bodies (DLB). We hypothesised that it would be possible to identify subjects with mild cognitive impairment (MCI) that displayed the clinical and neuropsychological phenotype of DLB, but in a milder form.

Background
Prodromal Alzheimer’s disease has been extensively studied, but relatively little is known about prodromal DLB. Previous research has suggested that DLB is likely to be preceded by a nonamnestic MCI, whereas Alzheimer’s disease is more likely to be preceded by amnestic MCI. Symptoms such as decreased sense of smell and autonomic dysfunction are known to occur in the prodromal phase of other Lewy body disorders, such as Parkinson’s disease. Methods Patients with MCI and symptoms suggestive of Lewy body disease were recruited. Each patient had a comprehensive clinical and neuropsychological assessment and striatal dopaminergic 123I-FP-CIT imaging. Lewy body MCI (LB-MCI) was defined by the presence of core and suggestive features of DLB (fluctuating cognition, parkinsonism, visual hallucinations, REM sleep behaviour disorder, neuroleptic sensitivity and abnormal 123I-FP-CIT imaging). Subjects with two or more core or suggestive features were categorised as LB-MCI. Subjects with no core or suggestive features were categorised as ‘other MCI’. Subjects with one core or suggestive feature were classed as possible LB-MCI.

Results
Sixty-two patients have been recruited to date. The most common diagnostic features were REM sleep behaviour disorder (42%) and cognitive fluctuations (35%). One third of subjects had a positive 123I-FP-CIT scan. 35 patients were classed as LB-MCI and 17 classed as other MCI. 10 patients were classed as possible LB-MCI and were excluded from further analysis. LB-MCI subjects had better delayed recall (Rey Auditory Verbal Learning Test 3.7 v 1.6; p=0.01) and worse attention (Digit Vigilance 30.4 v 32.7; p=0.046) than the other MCI group. They were more likely to report poor sense of smell (49% v 18%; p=0.03), change in handwriting (69% v 35%; p=0.02), drooling (51% v 18%; p=0.02), frequent falls (39% v 7%; p=0.03), insomnia (31% v 0%; p=0.01) and visuospatial symptoms (39% v 6%; p=0.02). Symptoms of autonomic nervous system dysfunction were common in both groups.

Conclusions
It is possible to identify patients with core and suggestive features of DLB during the MCI phase. LB-MCI subjects display some of the neuropsychological features and associated symptoms seen in established DLB.