SUPPLEMENTARY MATERIAL

Appendix e-1

Functional impairment

To assess functional impairment in basic activities of living, the study neurologists performed standardized interviews with patients and caregivers at baseline, and 1, 3, and 5 years of follow-up. These interviews included information on impairment in (1) social and personal care, (2) occupational functioning, (3) self-administration of medication, and (4) the ability of driving a car, caused by cognitive dysfunction and independent of functional impairment attributable to motor, autonomic, or neuropsychiatric features. These features were further assessed using clinical examination and standardized rating scales, including the Unified Parkinson’s Disease Rating Scale (UPDRS)\textsuperscript{1} mentation, behaviour and mood (part I), Activities of Daily Living (ADL, part II) and motor (part III) sections, Hoehn and Yahr staging,\textsuperscript{2} Schwab and England scale,\textsuperscript{3} structured questionnaires to assess autonomic dysfunction, clinical assessment of orthostatic hypotension, the Montgomery and Aasberg Depression Rating Scale (MADRS),\textsuperscript{4} Starkstein Apathy Scale,\textsuperscript{5} Epworth Sleepiness Scale,\textsuperscript{6} and the 12-item Neuropsychiatric Inventory (NPI)\textsuperscript{7} covering a variety of behavioural symptoms.

Cognitive complaints

Subjective cognitive complaints reported by patients or family members were assessed using the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE)\textsuperscript{8} and the intellectual impairment item of the UPDRS mentation, behavior, and mood section (part I). Subjective cognitive complaints were defined as a score of $> 3.0$ on the IQCODE or a score $\geq 1$ on the intellectual impairment item of the UPDRS.
PDD exclusion criteria

Exclusion criteria for a diagnosis of PDD were features suggestive of other co-morbid conditions or diseases as cause of cognitive impairment, including acute confusion due to systemic diseases or drug intoxication, major depression, and abrupt deterioration or stepwise progression of cognitive deficits indicating cerebrovascular disease.

Flow of subjects

Of the 104 patients included in this study, 97 were alive at the end of the study period at median 5.0 (range 4.8-5.6) years of follow-up. Of these, 96 patients were still in the study, whereas one patient with dementia had withdrawn from study participation. Further seven patients had died during follow-up, four of whom without dementia. Median time from baseline to death in these subjects was 4.6 (range 3.2-4.8) years and median time from latest study visit to death was 4.1 months (range 0.1-8.4 months). Final dementia status was available in all patients.
e-References


### Table e-1. Relation between cerebrospinal fluid Aβ42 values, MCI status and age at PD diagnosis, and the risk of developing incident dementia

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted hazard</th>
<th>Adjusted hazard</th>
<th>Adjusted hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ratio (95% CI)</td>
<td>p value</td>
<td>ratio¹ (95% CI)</td>
</tr>
<tr>
<td>Low Aβ42&lt;sub&gt;ECL&lt;/sub&gt;</td>
<td>8.1 (1.9-34.8)</td>
<td>0.005</td>
<td>9.9 (2.3-43.5)</td>
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<tr>
<td>Low Aβ42&lt;sub&gt;ELISA&lt;/sub&gt;</td>
<td>6.8 (2.0-23.1)</td>
<td>0.002</td>
<td>-</td>
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<tr>
<td>PD-MCI</td>
<td>5.7 (2.3-13.9)</td>
<td>&lt;0.001</td>
<td>6.6 (2.6-17.0)</td>
</tr>
<tr>
<td>Age, years</td>
<td>1.09 (1.03-1.15)</td>
<td>0.002</td>
<td>1.10 (1.04-1.17)</td>
</tr>
</tbody>
</table>

ECL: electrochemiluminescence

PD-MCI: Parkinson disease with mild cognitive impairment

¹ Multivariate analysis including CSF Aβ42<sub>ECL</sub>, PD-MCI status and age at baseline

² Multivariate analysis including CSF Aβ42<sub>ELISA</sub>, PD-MCI status and age at baseline
**Figure e-1.** Distribution of baseline cerebrospinal fluid Aβ42 concentrations

Distribution of baseline cerebrospinal fluid Aβ42 concentrations as measured by electrochemiluminescence and ELISA. Red dots indicate patients who developed dementia during follow-up. Blue circles indicate patients who remained non-demented during follow-up. Grey lines separate tertiles of Aβ42. Red lines indicate cut-off values for Aβ42 estimated by Youden methodology.

ECL = electrochemiluminescence
Figure e-2. Receiver operating characteristic (ROC) curves

Receiver operating characteristic (ROC) curves to determine the area under curve (AUC) and optimal cut-off values of baseline cerebrospinal fluid (CSF) Aβ42 values in the prediction of dementia in patients with incident PD. ECL=electrochemiluminescence