Early predictors of mortality in parkinsonism and Parkinson disease
A population-based study

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Study objective
To examine mortality and the associated risk factors in community-based patients with incident parkinsonism and Parkinson disease (PD).

Summary results
These patients have reduced survival, but this is highly dependent on the type and characteristics of the parkinsonian disorder.

What is known and what this paper adds
Past studies on survival in PD have been biased due to being hospital-based or using register-based case-finding methods. This study avoids these biases by studying community-based patients.

Participants and setting
This study followed 182 patients diagnosed with new-onset idiopathic parkinsonism between January 2004 and April 2009 within an Umeå University Hospital catchment area in northern Sweden (population, ~142,000 people). These participants were initially dementia-free, drug-naive, and in the early motor phase.

Design, size, and duration
All participants underwent standardized clinical assessments at baseline and at follow-up assessments that were conducted at least annually. The participants also underwent comprehensive neuropsychological assessments. This study used ELISAs and flow cytometry to measure CSF levels of various PD biomarkers. Brain dopamine transporter (DAT) levels were quantified with SPECT. The participants were followed until death or August 2017. To calculate standardized mortality ratios (SMRs), this study obtained reference mortality data for the general population from the Swedish National Statistics. Cox proportional hazard models were used to identify predictors of mortality.

Main results and the role of chance
The SMR for all patients was 1.84 (95% confidence interval, 1.50–2.22; p < 0.001). The predictors of reduced survival in PD included greater baseline ages, mild cognitive impairment, freezing of gait, hyposmia, reduced caudate DAT activity, and elevated CSF leukocytes levels (p < 0.005 for all). PD patients presenting with normal cognitive function had an essentially normal life expectancy.

Bias, confounding, and other reasons for caution
The models did not correct for all potential confounders, and autopsy-based neuropathologic diagnoses were available in only 5 cases. Additionally, other psychosocial determinants (marital status, socioeconomic status, etc.) which may influence survival, were not considered in these models.

Generalizability to other populations
This study’s population-based design favors the generalizability of the results, although the generalizability to populations unlike Sweden’s may be limited.

Study funding/potential competing interests
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