

Methods for Assessing Mortality in Parkinson's Disease Surveys

Posada et al.¹ recently published a report on mortality in Parkinson's disease (PD) patients in a prospective substudy of neurological disorders in Central Spain, the neurological disorders in Central Spain (NEDICES) study. The report used a population-based data-collection method to avoid referral selection biases, and the investigators concluded that PD was an independent predictor of mortality in the elderly.¹ Based on the literature, there is a wide range of reported data for mortality rates and hazard ratios (HRs) in PD from different sampling methods and statistical procedures.

Standardized mortality rate (SMR) is among the most frequently used indices used for PD surveys.² It is important to calculate an age-adjusted SMR that excludes the effect of different age distributions between PD patients and healthy individuals. Another life-table-related index is the PD-specific life expectancy (LE). LE calculations make it possible to compare the mortality effects of PD between patients and controls with different mean ages. This is a subject of contention in many surveys, such as Posada et al.'s,¹ where PD subjects were significantly older than the general population (77.0 versus 74.3 years). In line with Posada et al.,¹ other investigators have focused on survival and HR. In such cases, Cox's proportional hazards analyses are normally used to adjust the risk of PD mortality with regard to baseline confounding variables. Although after adjustment HRs of mortality remained elevated in PD patients, it was considerably reduced from 2.29 [95% confidence interval [CI]: 1.80–2.93] to 1.75 (95% CI: 1.32–2.31).¹ Nevertheless, it should be noted that such a multivariate adjustment with consideration of numerous confounders and covariates in a sample size of 81 PD patients with 66 deaths may reduce statistical power. The onset age of PD should be taken into account in evaluations of mortality in PD. Previous surveys have shown that LE and survival reduction is significantly more pronounced in PD patients with early onset of the disease.^{3,4} Posada et al.¹ only recruited cases 65 years of age and above, and many young-onset PD patients were excluded at the time of enrollment. Thus, an unadjusted HR signified a higher mortality rate in PD patients with old onset (i.e., ≥ 65 years; 2.36 [95% CI: 1.79–3.12] versus 2.08

[95% CI: 1.25–3.45]), and after multiple adjustment, the rate was superseded by that of the earlier onset cases (i.e., < 65 years; 1.73 [95% CI: 1.28–2.36] versus 1.81 [95% CI: 0.96–3.38]).¹ It seems that the adjusted HR for early-onset PD patients failed to reach the statistically significant level, because the 95% CI of the estimation includes the value of 1.0. Despite evaluation of the effect of early onset of the disease on mortality, the study underestimated the role of young-onset patients in PD mortality by the inclusion of only those individuals 65 years and older. In other words, the NEDICES survey only assessed the young-onset PD cases that lived to more than 65 years.

In conclusion, it can be recommended that different methods of mortality assessment should be taken into consideration, and that recruitment should be extended to include cases with early onset of PD as well. ■

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