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Is Parkinson's disease-related Mortality Declining?

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Reports of trends in mortality from neurodegenerative disease have long relied on death certificates registries and other nationally-administered databanks to determine the state and direction of public health regarding these conditions. In this article, Mylne et. al. turned to the Office of National Statistics, England to ascertain the death statistics for patients with Parkinson's disease (PD) for the most recent time period available. Their findings are both intriguing and encouraging, and deserve further comment.

Previous reports of PD mortality trends typically used cause of death data extracted from death certificates. This approach can under-ascertain such deaths, because there is a tendency to record on these certificates the proximal cause of death (i.e., pneumonia) rather than an underlying chronic illness (PD) as the main cause of death^{1,2,3}.

To address this issue, the researchers used a different methodology. Instead of using only those that listed PD as the cause of death, they analyzed all the death certificates that mentioned PD as present, even if it was not the proximal cause of death. Because data on such “mentions” of PD were only available beginning in 1993, they analyzed the data from that year onwards. Because there was no exactly comparable data on mortality for preceding years, they compared the trend observed not against an earlier era but against itself, mapping out the contour of the period under observation.

Several trends emerged. Principally, there was a nearly one-fifth decline in age-standardized mortality rates over the years 1993–2006. This decline was more pronounced in men, and in older age groups, specifically those ≥ 85 years old.

Several issues deserve further discussion.

First is the data acquisition itself. Death certificates are a convenient and well-established, but often limited, data source. Inclusion of neurodegenerative disease on the death certificate is inconsistent and under-represented⁴, and can be influenced by factors such as socioeconomic status⁵ the latter being perhaps a proxy for place of death, or for who completed the death certificate (personal physician with thorough knowledge of the patient vs. another physician).

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Under- or inaccurate reporting stands to hamper true estimates of disease-specific mortality. The authors sought to overcome this by using “mentions” instead of “cause of death” data. Mentions, however, may also be subject to some extent to such biases.

Second, examining the data, one observes a substantial decrease in standardized mortality rates in the early years under study (Appendix 1). There is disproportionate weight of these early years in determining the overall size of the downward trend. Among both men and women, approximately 50% of the overall decline seen in the 14-year interval studied occurred during the first 4 years of that period (1993–1996). Why this early decline occurred is not clear; a 1993 change in coding practice resulted in a decrease in reporting of PD as the principal cause of death, but the use of mentions, and the starting point of 1993, are meant to overcome exactly that artifact. This early downturn is particularly evident in older age groups. Explanation of this phenomenon may be beyond the scope of the study, but deserves further analysis. Had the analysis period started in 1996, the overall declining trend would have been a more modest one.

Third, if the mortality rate among people with PD is truly declining to a significant degree, one would expect a corresponding increase in prevalence during the same period. However, as the authors note, prevalence of PD in this population in the past 30 years has been constant⁶. This suggests a decrease in incidence, but incidence data have proved difficult to obtain.

If there is truly a decrease in mortality of even a moderate degree for patients with PD, what is the reason? The authors cite several possibilities, noting that the trend observed could be caused by either a true decrease in incidence, or an increase in survival, which in turn may be due to better medical care. If the latter is the explanation, this would indeed be noteworthy. The data seen here are a promising beginning. Perhaps most positive for PD patients is the suggestion that the decline has not yet reached a plateau. Repeated measures of these figures at future intervals will provide the clearest picture of how far this trend has come, and whether it continues.

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