Commentary

The comparison of the epidemiology and clinical profiles of Parkinson's disease (PD) should take several precautions into account. The major problem in comparing studies across countries are the differing time periods of conduct as well as age and gender patterns of the study populations. Both the long course of disease

and the increase in life expectancy have contributed to an increase in PD prevalence worldwide with large variations between countries. Not every investigation used age standardization and, therefore, the comparison of prevalence and incidence measures unlikely represents the true variation of the disease.

In terms of distribution of PD, several studies provided evidence to suggest a higher prevalence of the disease in rural areas as compared to urban areas,[1-3] whereas the findings of other studies did not lend support to this observation.[4,5] Environmental exposures (i.e., pesticides or drinking water) may explain this difference. The proportion of newly undiagnosed PD cases was found to be higher in rural areas compared to urban areas (91% vs. 57%) and was also higher in developing countries. [6] Reasons for this disparity may be the restricted access to specialist medical services and the difficulty of diagnosing the condition, particularly mild forms, and difficulties when the disease is in very old individuals.

The incidence rate of PD is higher in men compared to women especially in the older population. There was male preponderance in PD in Nigeria (3.2:1 in the study by Owolabi LF and 3.3:1 by Okubadejo NU).[7,8] By average, the male:female ratios of PD incidence ranged from 1.5 to 2. Estrogen may protect neuronal cell death through its antioxidant properties. However, some studies did not support this difference.[9-11]

Epidemiologic data show that the prevalence of PD is higher in whites than in Hispanics, blacks, or Asians.[12] However, this issue remains controversial. The possible explanations of the discrepancy might be the variation in population characteristics, case definitions, methods of case ascertainment, sources of PD cases, and denominator populations.

The epidemiologic data of the association between socioeconomic factors as well as educational level and PD are inconsistent. Many epidemiologic studies examined the association between occupations and PD risk. However, the data are controversial. Most of the studies on occupational risk factors were case-control studies. They were, therefore, subject to methodological limitations.

Case finding methods are varied from hospital based record, door-to-door survey, and self-report. Even in the door-to-door survey, there were still variety in techniques used such as one-stage and two-stage survey, instruments used, identified informants, and interviewers. These differences definitely affected the outcomes of the studies.[13]

As a chronic slowly progressive disease requiring specialists to diagnose, PD is frequently under-recognized. Hospital-based studies are subjected to underestimate incidence and prevalence, especially in the countries with restricted access to health care. Hospital-based studies may not be generalizable to the population, as they did not include patients with mild symptoms, i.e., those who were unlikely to seek medical treatment.[14] The door-to-door surveys reported higher prevalences than did hospital-based surveys. Moreover, the distribution of PD in the hospital may be distorted as there might be more atypical cases (i.e., young-onset) than general population.

The majority of past prevalence studies in Africa used a WHO screening instrument and protocol that was not specific for PD and that did not differentiate secondary causes of parkinsonism from PD.[15] The different diagnostic criteria influence prevalence estimates; therefore, it is imprecise to compare surveys that use different diagnostic criteria. Also, the inclusion and exclusion criteria were varying. Earlier studies tend to use less specific criteria than more recent studies. Stricter criteria yield higher specificity with the cost of lower sensitivity and broader criteria yield the opposite.

Weerasak Muangpaisan

Department of Preventive and Social Medicine, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Address for correspondence:
Dr. Weerasak Muangpaisan,
Department of Preventive and Social Medicine, Faculty of Medicine,
Siriraj Hospital, Mahidol University, Bangkok, Thailand.
E-mail: siwmp@mahidol.ac.th

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