Deprived of a Good Stroke Outcome

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Although the decline in poststroke mortality is a cause for celebration,¹ we must remain mindful that substantial poststroke disability is considered a worse outcome than death for many people.² Thus, an increased focus on stroke survivors, in particular, their cognitive and physical function, is needed. Stroke survivors face many of the same challenges as cancer survivors, and perhaps stroke survivorship could be modeled after the ongoing extensive survivorship care and research done by our oncology colleagues.³

In this issue of Stroke, Chen et al⁴ used 16 years of data from the South London Stroke registry to explore the role of socioeconomic status (SES) and poststroke disability. In this well-done article, the authors found that SES was associated with 90-day and 3-year functional impairment as measured by the Barthel Index. When compared with the least deprived group of stroke survivors, the most deprived group of stroke survivors had over a 75% increase in the odds of poor functional outcome. This association remained after accounting for prominent predictors of poststroke disability, including age, stroke severity, and pre-morbid functional impairment. In stratified analysis, SES was associated with functional impairment in women, patients aged ≥65 years, patients without comorbidities, and patients with an ischemic stroke but not other groups. Glasgow Coma Score and speech deficit were used to adjust for stroke severity rather than a more comprehensive severity measure like the National Institutes of Health Stroke Scale score, and this may explain a part of their significant findings.

Across many different health and disease conditions, lower SES, often in a gradated fashion, has been associated with poor outcomes.⁵ Within stroke, there is a robust association between SES and stroke incidence and mortality, whereas the evidence for the association of SES and stroke severity is more complex.⁶ Various measures of SES have been used in stroke research, including education, occupation, income/wealth, material ownership, and geographic based measures, each of which considers a different aspect of SES.⁷ The study of Chen et al⁴ used an Index of Multiple Deprivation, which is based on the area of residence and is a composite measure of 38 indicators. Although this likely reflects home location attributes, such as the physical, social, or service environment, which are associated with an individual’s health, it does not directly reflect the stroke survivors’ individual SES.

Research exploring poststroke disability is challenging. One concern is the possibility of differential mortality. For example, it could be that patients with stroke with the lowest SES use do-not-resuscitate orders less and, therefore, have reduced mortality compared with those with higher SES but are left with greater disability. However, the authors who published previous work in this population suggest that poststroke mortality is also associated with SES so differential mortality does not seem to explain the results.⁵ Second, and perhaps most importantly is the large percentage of stroke survivors whom are lost to follow-up. In the article by Chen et al,⁴ 35% of stroke survivors were not included in the final analysis. The authors should provide data that assures us that loss to follow-up was not based on SES and poor function, and therefore was unlikely to influence the results.

The article by Chen et al⁴ is important because it reminds us of the critical poststroke recovery period in a time when most clinical research is directed to the acute period. The article also specifically draws our attention to women who were especially affected by low SES compared with men. Worse poststroke functional outcomes have been observed previously in women when compared with that in men,⁹ but the article by Chen et al⁴ draws our attention to the fact that sex and SES may have additive negative effects on outcome and suggests the need to focus on poor women in poststroke recovery efforts particularly.

To improve outcomes among those with lower SES, the pathways through which SES affect poststroke disability must be explored. Differential outcomes by SES may suggest differential access to medical care, whereas the United Kingdom enjoys universal health care, other barriers such as lack of transportation, access to healthy food, safe neighborhoods, stress, racism/discrimination, quality or intensity of poststroke rehabilitation, and secondary stroke prevention among others may be a part of the pathway by which SES influences poststroke disability.⁵ Unpacking the beneficial social services and treatments those in the higher SES group compared with those in the lower SES group will be important before interventions are developed to reduce poststroke disability. In the interim, clinicians should be cognizant of the challenges facing stroke survivors, particularly those with low SES, and work with social workers and other professionals to ensure quality stroke survivorship care.

Disclosures

None.

References


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