

Suicide in stroke survivors

Frequency and risk factors

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Stroke is a substantial health problem worldwide. In addition to the high mortality in the acute phase, stroke causes further mortality over time due to associated comorbidities and complications, including suicidality.¹ Stroke survivors have an increased risk of attempted or completed suicide.² Identified risk factors for suicidality include depression, previous mood disorder, prior history of stroke, younger age, and cognitive impairment.² Limited data are available on the role of socioeconomic factors such as civil status (most stroke survivors are widows or widowers), education, or income in suicidality. The recognition of relevant risk factors may help to identify subgroups of stroke survivors at increased risk for suicide and allow development of adequate preventive intervention in high-risk cases.

In this issue of *Neurology*®, Eriksson et al.³ report the results of a 12-year nationwide Swedish cohort study of 220,336 stroke survivors on the frequency of suicide. The study has much larger sample size than previous epidemiologic studies.^{1,4}

The current study provides some important findings. The authors found that, despite the relatively low absolute number of attempted and completed suicides (1,217 suicide attempts in 985 patients with 260 completed suicides), the rate of suicide after stroke was nearly twice that of the general Swedish population (30 vs 16 suicides per 100,000 person-years). The suicide rate in the general population of Sweden is relatively high; therefore these results may not generalize to other countries. For example, the Swedish suicide rate is lower than that of Lithuania (34.1 per 100,000 inhabitants) and Latvia (22.9 per 100,000 inhabitants), similar to that of France (16.3), but much higher than that of other western countries (United States 11, Canada 11.3, Germany 11.9, Netherlands 9.3, United Kingdom 6.9, Italy 6.3).⁵ Moreover, the current reported Swedish rate (16 per 100,000 person-years) in 2014 is higher than the Swedish rate reported in 2008.⁵ The risk of suicide after a stroke appears to decline with time, but remains high during the first 2 years after stroke (with 1 in 3,000 patients dying by suicide during the first year after stroke).

The ethnic makeup of a population may influence variables and outcomes in epidemiologic studies and therefore must be considered when interpreting data. In this study, the suicide risk was higher in native-born Swedes than in those born in other countries, particularly in the Middle East. As suggested by the authors, different lifestyle and religion may exert a protective effect. Ideally, we need data on poststroke suicides from other, non-Scandinavian countries, including information about the effect of lifestyle and welfare. To date, the available data all come from Scandinavia: this Swedish report and 2 other relevant epidemiologic studies from Denmark.^{1,4} Therefore, caution is necessary before generalizing these data to other countries.

This study confirms not only the role of some well-known adverse prognostic factors such as younger age, severity of stroke, and depression, but also the negative influence of some socioeconomic factors such as lower education, lower income, and living alone. In particular, younger patients (aged 18–54 years) had 6 times higher suicidal risk compared to patients aged over 85 years. Moreover, characteristics like male sex, living alone, lower education, and low and middle income were all associated with an increased risk. These socioeconomic factors agree with suicidal risks in nonstroke patients, as reported by another recent Swedish study, and therefore may not be specific to stroke survivors.⁶ Most of these risk factors are not modifiable.

This study has clear limitations. The diagnosis of depression was based on self-report and response to the question “Do you feel depressed?” Therefore some uncertainties on diagnostic accuracy remain. In fact, a discrepancy in the diagnosis of poststroke depression between psychiatric interview (68% depressed) vs self-report (Beck Depression Inventory, 50% depressed) was detected by Schubert et al.⁷ Similarly, the use of level of consciousness as a marker for the assessment of stroke severity may have a low sensitivity or specificity.

Although the absolute number of poststroke suicides is relatively low, certain stroke patients

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with characteristics of high suicidal risk (younger age, male sex, and relevant socioeconomic deprivation) require careful multidisciplinary attention and psychosocial support to prevent suicidal behavior.

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