

Fewer Stroke-related Deaths in Argentina: Good News, But the Debt is Still Outstanding

Menos muertes por enfermedad cerebrovascular en Argentina: buenas noticias, pero la deuda sigue pendiente.

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Although stroke incidence and mortality have declined in high-income countries (World Bank Classification), overall worldwide stroke burden has increased due to population aging.⁽¹⁾ Indeed, the worldwide number of stroke victims has increased considerably within the last 20 years.⁽²⁾ The decline in the stroke incidence and stroke-related deaths in high-income countries was the consequence of the enactment of timely health policies. For example, in the province of Ontario (population of 14,000,000), Canada, the Ontario Stroke Strategy has probably resulted in the reduction of age-adjusted stroke incidence and mortality.⁽³⁾ This, at least partially, has indirectly resulted in fewer dementia cases.

Low- and middle-income countries, such as those of Latin America, face a dual problem in their struggle against cerebrovascular disease. On the one hand, there is scarcity of reliable data, and on the other, there is a lack of long-term and consistent health policies, although of course there are a few exceptions. The United Nations has made an urgent call to action for Latin American countries in order to improve data collection systems for assessing health indicators at the population level and for measuring the impact of public health policies. ⁽⁴⁾ In this context, the study of Mariani et al. published in this issue of the Argentine Journal of Cardiology, represents a significant contribution to understand the recent and current status of cerebrovascular disease in Argentina. ⁽⁵⁾ The study has a few limitations correctly addressed by the authors, but is methodologically robust and provides two relevant results. First, a consistent reduction in stroke-related deaths was found across all strata of socioeconomic status between 2000 and 2011. Second, there was an association between stroke-related mortality and lower socioeconomic status.

The decrease in stroke-related deaths between 2000 and 2011 in Argentina is a novel finding that could be explained by a reduction in stroke incidence or by reduced case fatality rates. In other words, is this finding related to fewer strokes or to improved stroke treatment? Both options seem to be unlikely, although there are some clues supporting reduced stroke incidence as a potential explanation. PRE-VISTA, the Program for the Epidemiological Evaluation of Stroke in Tandil, Argentina, is the first prospective, population-based study assessing stroke incidence and mortality in the country. ⁽⁶⁾ This study has shown lower stroke incidence in Tandil between 2013 and 2015 than any prior Latin American stroke study. ⁽⁷⁾ In part, this could be due to a progressive decline in stroke incidence based on the development of health policies aimed at improving the control of risk factors in Argentina. Effectively, according to the National Risk Factor Survey of Argentina, there has been a constant decline in the prevalence of salt added to meals, salt content in processed foods, and smoking since its inception in 2005. ⁽⁸⁾ Use of antihypertensive agents has also increased, particularly among the most deprived socioeconomic strata of the population (provision of free antihypertensive drugs by the Government). The progressive improvements in the management of hypertension have probably had a great impact on the reduction of stroke risk, since 80% of stroke victims in Argentina have a history of high blood pressure. ⁽⁹⁾ Stroke-related deaths in Argentina are very unlikely explained by advances in the quality of acute and hyperacute stroke care, since there has been a lack of health policies in this regard during and before the study period. Moreover, recent evidence suggests that stroke treatment status in Argentina is critically poor in terms of intravenous thrombolysis

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therapy and availability of stroke units. (10)

Low socioeconomic status was related to higher stroke-related deaths in the study by Mariani et al. Socioeconomic status is frequently used to compare access to social resources and infrastructure across different populations or individuals. It is a construct that comprises and combines economic and social aspects such as income, education, dwelling characteristics, nutritional level and employment status, among others. Thus, one of its limitations is that, since it can be estimated in a myriad of ways, studies assessing its association with health and disease can show conflicting results. For example, in Argentina, unemployment, but not lower educational level or lower access to health insurance, was associated with higher in-hospital stroke mortality in the National Registry of Cerebrovascular Accidents (ReNACer). (11) Yet, evidence supporting the association between lower socioeconomic status and higher stroke incidence and mortality is overwhelming. Worldwide, lower socioeconomic strata are associated with higher stroke incidence, younger age at stroke onset, greater relative proportion of hemorrhagic strokes, and higher stroke mortality. (12) Furthermore, socioeconomic status has been shown to be associated with worse stroke outcome both at individual and neighborhood levels. (13) Finally, Mariani et al. suggest that one of the limitations of their study was the lack of adjustment for vascular risk factors. (6) However, the classical belief that lower socioeconomic strata are related to higher burden and worse treatment of risk factors is controversial and has not been consistently demonstrated. (14)

The study by Mariani et al. represents a significant contribution to stroke knowledge in Argentina and proves how scientific information can be generated based on the analysis of systematically collected data. This initiative should serve as example and should also encourage other researchers to follow similar pathways. The availability of reliable data is the very first and essential step for the development of successful health policies. The Argentine Government has made some contributions in terms of prevention, but is still indebted to the society regarding acute stroke treatment policies. This is also true for the legislature, since legislation has been shown to have considerable impact on stroke outcomes. (15) In high-income countries time between stroke onset and treatment is continuously decreasing, the effectiveness of acute stroke treatment is improving, and new therapeutic approaches are developed and progressively used (e.g., mechanical thrombectomy). Conversely, in Argentina, with a population of over 40 million, there are no more than 25 centers, in only 11 of 24 provinces, where intravenous thrombolysis is offered in the acute stroke phase. (10) Consequently, the gap between what should be done and what is actually done has widened. In Argentina, there is still much to

be done but, at least, a first few steps have been taken in terms of knowledge generation.

Conflicts of interest

None declared.

(See authors' conflicts of interest forms in the website/Supplementary material).

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