Excess Risk of Stroke in Australia’s Aboriginal and Torres Strait Islander Populations

Amanda G. Thrift, PhD; Dominique A. Cadilhac, PhD; Sandra Eades, BMed, PhD

See related article, page 1515–1521

There are an estimated ~517,000 Aboriginal and Torres Strait Islander peoples in Australia, comprising ~2.5% of the total population.¹ The greatest proportion of this group (90%) identify themselves as being of Aboriginal origin.² The remainder represent 6% of Torres Strait Islander origin, and 4% identify as being of both Aboriginal and Torres Strait Islander origin. Within each of these groups, often collectively called “Indigenous Australians,” there is a wide diversity of languages, culture, governance, community structure, geographic locality, and history.

In the current issue of Stroke, Katzenellenbogen et al³ highlight the disparity in the burden of stroke between Indigenous Australians and non-Indigenous Australians in Western Australia, the largest state of Australia (2.5 million km²), in which ~15% of all Indigenous Australians reside and, overall, where ~2.2 million people live (10% of the total Australian population).⁴ Using a high-quality comprehensive health data linkage system, these authors have found that when compared to non-Indigenous Australians, the incidence rate of stroke in Indigenous Australians was 2.6-fold in men and 3.0-fold in women. Similarly, disability-adjusted life-years were also greater in Indigenous Australians, being ~3.2-fold that of male non-Indigenous Australians and 2.8-fold that of female non-Indigenous Australians. These disparities were greatest in the 35- to 54-year age group for both male and female Indigenous Australians. These disparities were greatest in the 35- to 54-year age group for incidence (6- to 7-fold) and in the 35- to 44-year age group for disability-adjusted life-years (~8-fold). The majority of the disability-adjusted life-years burden was attributed to the greater case-fatality rates in Indigenous males and females aged between 35 and 74 years.

Despite these significant disparities, it is possible that the figures presented for stroke incidence and disability-adjusted life-years among Aboriginal and Torres Strait Islander peoples are underestimated. This may arise because there is incomplete identification of Indigenous Australians in death certificates and hospital records, and because there are uncertainties about the number of people identifying themselves as being of Aboriginal and Torres Strait Islander origin.⁵ To counter potential underestimation by this means, the authors have defined a person as Indigenous when any of multiple stroke-related and nonstroke-related hospital admissions (or their death record) indicated an Indigenous status. The capture of Indigenous status therefore will be greater in those more often admitted to hospital.

Another potential underestimate of stroke in Indigenous Australians in this study may result from the use of an urban incidence study to derive figures for out-of-hospital strokes.⁶ There are many potential reasons that out-of-hospital figures may be greater in remote regions of Australia than in urban regions. This is because people living in remote regions are often required to travel great distances to attend a hospital. These distances may impede hospital attendance, particularly if one has experienced a relatively minor stroke. Because 41% of Indigenous people living in Western Australia live in remote or very remote regions,⁷ whereas only ~5% of the non-Indigenous population live in these areas, hospital attendance for those with stroke may differ between Indigenous and non-Indigenous Australians. Thus, nonattendance at hospital may result in a greater underestimate of stroke rates and disability-adjusted life-years in Indigenous Australians. However, given the paucity of reliable data in this area, these data provide the best available evidence and the disparities in stroke burden reported in this issue of Stroke are alarming enough.⁸

The excess risk of stroke in Indigenous Australians originates from a number of different factors.⁹ These factors include those originating from relative social, economic, and educational disadvantage, those associated with physiological factors such as from intergenerational changes,⁹ as well as those arising from psychological factors. Intergenerational changes are more pronounced in this population, with Indigenous Australians experiencing a rapid epidemiological transition with 200 years since the settlement of Australia contrasting with the metabolic requirements for >50,000 years of living as hunter-gatherers. Characteristics of this transition are higher rates of under-nutrition and over-nutrition in pregnancy, which have been shown to influence the development of hypertension, obesity,¹⁰ and diabetes in offspring. Furthermore, Indigenous people have a greater prevalence of cardiovascular risk factors, such as smoking, diabetes, and hypertension.¹¹,¹² In addition, access to basic culturally appropriate medical care and preventive treatment

The opinions expressed in this editorial are not necessarily those of the editors or of the American Heart Association.

From the Department of Medicine (A.G.T., D.A.C.), Southern Clinical School, Monash Medical Centre, Monash University, Melbourne, Victoria, Australia; National Stroke Research Institute (A.G.T., D.A.C.), Florey Neuroscience Institutes, Heidelberg Heights, Victoria, Australia; Indigenous Maternal and Child Health (S.E.), Baker IDI Heart & Diabetes Institute, Melbourne, Victoria, Australia; Department of Epidemiology and Preventive Medicine (S.E.), Monash University, Melbourne, Victoria, Australia; School of Medicine and Public Health (S.E.), National Research Institute of Indigenous Health (S.E.), University of Newcastle, Callaghan, New South Wales, Australia; and Correspondence to Professor Amanda Thrift, Epidemiology and Prevention Unit, Stroke and Ageing Research Centre (STARC), Department of Medicine, Monash Medical Centre, Southern Clinical School, Monash University, Level 1/43-51 Kanooka Grove, Clayton, Victoria 3168, Australia. E-mail amanda.thrift@monash.edu (Stroke. 2011;42:1501-1502.) © 2011 American Heart Association, Inc.

Stroke is available at http://stroke.ahajournals.org
DOI: 10.1161/STROKEAHA.111.617746

1501
is poorer in Indigenous peoples. For example, 20% of Indigenous households report that they cannot access emergency services.1

Actions urgently required to tackle these disparities include redressing the social and economic disparities experienced by Indigenous Australians and the lack of culturally appropriate comprehensive health care services available to Indigenous peoples. As highlighted by Hill et al,15 it is likely that the disparity in case fatality is influenced by a combination of late presentations to hospital, deficiencies in acute management, and inadequate follow-up during the course of disease. Little is known about whether there are differences in hospital care practices provided to Indigenous Australians and non-Indigenous Australians. However, this would be an area in which greater access to evidence-based management could reduce the stroke burden.

A comprehensive approach to redressing the disparities must incorporate: (1) better access to culturally appropriate health care services to improve identification and management of risk factors for stroke and other chronic conditions; (2) training and support for Aboriginal health workers and other health care providers; and (3) education to improve awareness of risk management. Successful implementation of these strategies will help to provide better health care for Aboriginal and Torres Strait Islander peoples.16,17 The linked data from Western Australia used in this article are of high quality, and such quality is rare. These data provide a firm basis from which to monitor any changes in stroke burden over time. If access, risk factor management, and outcome improve, then we will observe a decline in this disparity in stroke burden over time.

References


Key Words: burden linked data stroke
Excess Risk of Stroke in Australia's Aboriginal and Torres Strait Islander Populations
Amanda G. Thrift, Dominique A. Cadilhac and Sandra Eades

Stroke. 2011;42:1501-1502; originally published online April 14, 2011;
doi: 10.1161/STROKEAHA.111.617746
Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2011 American Heart Association, Inc. All rights reserved.
Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://stroke.ahajournals.org/content/42/6/1501

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Stroke can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Stroke is online at:
http://stroke.ahajournals.org/subscriptions/