Stroke Awareness and Knowledge in an Urban New Zealand Population

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Background: Stroke is the third most common cause of death and a major cause of chronic disability in New Zealand. Linked to risk factors that develop across the life-course, stroke is considered to be largely preventable. This study assessed the awareness of stroke risk, symptoms, detection, and prevention behaviors in an urban New Zealand population. *Methods:* Demographics, stroke risk factors awareness, symptoms, responsiveness, and prevention behaviors were evaluated using a structured oral questionnaire. Binomial logistic regression analyses were used to identify predictors of stroke literacy. *Results:* Although personal experience of stroke increased awareness of symptoms and their likeliness to indicate the need for urgent medical attention, only 42.7% of the respondents (n = 850) identified stroke as involving both blood and the brain. Educational attainment at or above a trade certificate, apprenticeship, or diploma increased the awareness of stroke symptoms compared with those with no formal educational attainment. Pacific Island respondents were less likely than New Zealand Europeans to identify a number of stroke risk factors. Māori, Pacific Island, and Asian respondents were less likely to identify symptoms of stroke and indicate the need for urgent medical attention. *Conclusions:* The variability in stroke awareness and knowledge may suggest the need to enhance stroke-related health literacy that facilitates understanding of risk and of factors that reduce morbidity and mortality after stroke in people of Māori and Pacific Island descent and in those with lower educational attainment or socioeconomic status. It is therefore important that stroke awareness campaigns include tailored components for target audiences. **Key Words:** Noncommunicable disease—stroke awareness—F.A.S.T.—New Zealand—urban population.

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Received November 4, 2014; accepted January 2, 2015.

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The study arose from the LENScience Biomedical Summer Programme, which provides final year high school and undergraduate students with learning opportunities associated with an introduction to scientific research. The Summer School programme was funded by Gravida: National Centre for Growth and Development, New Zealand, and the Friedlander Foundation.

There are no conflicts of interest to declare.

There are no disclosures.

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1052-3057/$ - see front matter

http://dx.doi.org/10.1016/j.jstrokecerebrovasdis.2015.01.003

Introduction

Stroke, a preventable noncommunicable disease (NCD) associated with potentially modifiable lifestyle factors,[1] is associated with long-term disability and is the second leading cause of death worldwide.[2] New Zealand has the second highest age-adjusted incidence of stroke among developed countries.[3] When stroke occurs, early detection and treatment are critical in reducing the risk of disability and death.[4] Early recognition and urgent transfer to stroke centers to ensure patients receive medical treatment within hours of stroke onset significantly improve survival rates.[5] Although dramatic improvements in medical care in recent years has resulted in improved outcomes,[6] increasing rates of survival and a trend toward greater indirect costs after stroke[7] could have significant economic impact for lower income and developing countries.[2]

Although the incidence of stroke in the total New Zealand population is high,[3,8,9] within New Zealand, significant variability exists in rates of stroke-related risk, morbidity, and mortality.[6,10,11] Increased burden of modifiable risk factors for stroke, including NCDs such as hypertension, hypercholesterolemia, metabolic syndrome and diabetes, overweight, and obesity,[12] are apparent in non-European ethnicities, low socioeconomic status (SES) populations,[13] and in those with lower levels of educational attainment.[14] Higher proportions of Māori and peoples of Pacific descent, who live in the most deprived areas of New Zealand[15,16] have greater incidence of a number of NCDs.

Māori adults are more than twice as likely to smoke as non-Māori and have increased NCD burden including cardiovascular disease, diabetes, hypertension, obesity, and poor dietary habits.[16] Peoples of Pacific descent have an increased incidence of diabetes, obesity, poor dietary habits, and greater prevalence of hazardous drinking patterns compared with non-Pacific peoples.[17] These factors could contribute to increased incidence of NCDs, including stroke, in these populations. Māori have increased incidence of stroke compared with New Zealanders of European origin,[18] sustain greater loss of health from cerebrovascular disease compared with non-Māori, and greater mortality compared with non-Māori in individuals below the age of 65 (35.6% versus 6.6%, respectively).[19,20] In New Zealand, peoples of Pacific descent have greater hospitalization rates from stroke compared with non-Pacific peoples of the same gender and age, and are more likely to die from cerebrovascular disease compared with non-Pacific peoples.[17]

Despite ongoing campaigns to increase stroke awareness in New Zealand, and with a recent focus on Pacific populations,[21] public awareness of stroke in New Zealand has not been assessed to determine where knowledge inadequacies exist. New Zealand data suggest that although awareness of stroke as a disease is high (99%), only 53% of respondents have adequate knowledge of stroke, defined by an ability to relate stroke to the brain and blood vessels.[22] Knowledge of risk factors of stroke and knowledge of appropriate responses to stroke signs or symptoms have not been assessed. A survey of the public awareness of stroke in New Zealand could inform the development of community health literacy and population-appropriate stroke intervention programs to facilitate effective knowledge translation. Identifying inconsistencies in public awareness of stroke within a representative sample of the New Zealand population could inform future public awareness campaigns. The purpose of this study was to assess public awareness and knowledge of stroke in an urban adult population with a demographic distribution representative of New Zealand.

Methods

Ethical Approval

The University of Auckland Human Participants Ethics Committee (reference number 2011/7772) approved this study.

Subject Sampling

Adult members of the general public were approached by trained research assistants working in 5 convenience-based sample sites outside major retail stores on public streets in the Auckland area. Ethnic diversity within the group of research assistants was reflective of those represented within the target population. Sampling sites were identified following the method established for a similar survey of public awareness of aphasia in New Zealand.[22] Sampling was carried out on a variety of days and occurred throughout the morning and afternoon on any single collection day. Shoppers who appeared to be aged older than 16 years were approached as they entered the store. Collection continued until data were broadly representative of the demographic diversity found in the New Zealand adult population according to the most recent New Zealand census data available at the time of data collection (2012).

Study Design

A brief explanation of the study was given, and verbal consent obtained before participation. Demographic data, including age, gender, highest level of educational qualification, and occupation, were collected. Participants were asked to state which ethnic groups they identified with and were able to state as many as were applicable. A brief, face-to-face, interview-based questionnaire (see Data S1 in Appendix) was administered to ascertain awareness and knowledge of stroke. Questions were designed to assess stroke literacy factors and to enable comparison with similar international studies.[23] Questions investigated stroke awareness and knowledge of stroke, stroke risk