

Stroke among Indigenous Australians at Royal Darwin Hospital, 2001–02

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TO THE EDITOR: Although the age-standardised stroke mortality rates among Australia's Indigenous people is more than twice that of the non-Indigenous population,¹ the medical literature contains only one audit of Indigenous stroke patients in Perth metropolitan hospitals.² No review of hospital care has been reported.

Royal Darwin Hospital (RDH) is the referral centre for Australia's "Top End", where 8.7% of Indigenous Australians reside; 40% of RDH inpatients are Indigenous. In 2002, while planning for the RDH stroke service, we audited stroke admissions from the previous year.

Among 121 eligible patients admitted between 1 July 2001 and 31 June 2002 with *International classification of diseases, 10th revision, Australian modification* (ICD-10-AM) codes 160–164 (haemorrhages [subarachnoid, intracerebral, other non-traumatic intracranial] and cerebral infarction), records for 116 (96%) were available, but six patients were excluded because of incorrect coding.

Box 1 outlines patient characteristics, while Box 2 examines risk factors and medication use for ischaemic stroke (because haemorrhages were few). Despite the observed differences between subgroups, there were no significant differences in mortality (4/36 for Indigenous v 7/42 for non-Indigenous; $P = 0.204$) or stroke severity at admission or discharge.

Box 3 highlights differences in risk factors between Indigenous males and females.

Retrospective data, particularly from a sample identified by medical record coding, should be interpreted with caution. In addition, the potential for random error due to small numbers, and the referral bias inherent in tertiary hospital admissions, mean our results may not truly represent the "Top End" Indigenous population. However, our data corroborate findings that Indigenous Australians suffer prema-

1 Baseline characteristics for 110 patients admitted to Royal Darwin Hospital with subarachnoid, intracerebral, and other non-traumatic intracranial haemorrhages and cerebral infarction in 2001–02

Baseline characteristics	Indigenous	Other	P
Number of patients	45	65	
Female sex	22 (49%)	19 (29%)	0.018
Mean age (years)	54	61	0.005
Rural dwelling	41 (91%)	22 (34%)	<0.001
Ischaemic stroke	36 (80%)	42 (65%)	0.081

2 Risk factors and medication use for the 78 patients who had ischaemic stroke

Risk factors and medications	Indigenous	Other	P
All patients	36	42	
Smoking	23 (64%)	11 (26%)	0.001
Diabetes mellitus	16 (44%)	10 (24%)	0.030
Rheumatic heart disease	8 (22%)	1 (2%)	<0.001
Males	19 (53%)	30 (71%)	0.089
Smoking	14 (74%)	12 (40%)	0.017
Diabetes mellitus	10 (53%)	7 (23%)	0.030
Females	17 (47%)	12 (29%)	0.089
Smoking	9 (53%)	0	0.002
Rheumatic heart disease	6 (35%)	0	0.026
Antiplatelet therapy			
Before admission	11 (31%)	19 (45%)	0.078
Admission	20 (56%)	38 (91%)	<0.001
Discharge	18/32 (56%)	29/35 (83%)	0.013
Anticoagulant therapy			
Before admission	4 (11%)	1 (2%)	<0.001
Discharge	4/32 (13%)	6/35 (17%)	0.235

3 Risk factor differences between Indigenous males and females who had ischaemic stroke

	Males	Females	P
Number of patients	19	17	
Hypertension	16 (84%)	6 (35%)	0.003
Non cerebral vascular disease	6 (32%)	1 (6%)	<0.001
Excessive alcohol intake	7 (37%)	1 (6%)	<0.001

ture cerebrovascular disease, and have higher rates of vascular risk factors than other Australians,¹ with some risk factor differences between males and females. Further, recent evidence suggests differences in standards of stroke care in regional (Queensland) hospitals.³ We found disparity in hospital care of Indigenous patients, and this requires further detailed investiga-

tion. A prospective, community-based study is urgently needed.

1 Australian Institute of Health and Welfare. Heart, stroke and vascular diseases — Australian facts 2004. Canberra: AIHW, 2004: 140.

2 Crowley P, Hankey GJ. Stroke among Australian Aboriginals in Perth WA, 1988–1992 [letter]. *Aust N Z J Med* 1995; 25: 55.

3 Read SJ, Levy J. Differences in stroke care practices between regional and metropolitan hospitals. *Intern Med J* 2005; 35: 447–450. □