Comparison of risk factors, severity and outcome between lacunar and non-lacunar stroke in a tertiary care center in Sri Lanka: A descriptive study

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(Index words: lacunar, non-lacunar, stroke, risk factors, Ischaemic stroke, stroke subtypes)

Abstract

This study compares demography, risk factors and outcome of lacunar (LAC) and non-lacunar (non-LAC) strokes from the prospective hospital based stroke registry at Colombo South Teaching Hospital from 1st March 2012 to 30th June 2013. Data on admission, discharge and at 28 days after discharge were analysed. There were 229 ischaemic stroke (IS) patients. Average age was 65.7 years (SD 12.2, range 34-94) and 116 (50.7%) were males. LAC (n=130, 56.8%) were common than non-LAC (n=99, 43.2%). There were 75 (64.7%) males and 55 (48.7%) females in the LAC group (adjusted OR 2.1, 95% CI 1.08-4.29). Atrial fibrillation was less frequent among LAC stroke (OR 0.3, 95% CI 0.09-0.99). Hypertension, diabetes, smoking, dyslipidaemia did not differ in the two groups. Lower NIHSS (5.34 Vs 6.6, p= 0.053), higher GCS (14.7 Vs 13.3, p=0.001) were seen in LAC. Disability (MRS, Barthel index) on discharge, at 28 days and mortality during hospital stay and within 28 days was lower in the LAC group (p <0.001).

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Introduction

Prevalence of stroke is rising worldwide and is particularly common in South East Asia [1]. It is the fourth commonest cause for in-hospital mortality in Sri Lanka [2]. Available studies on prevalence of stroke in Sri Lanka show a community prevalence of 1.6% [3].

Different classification systems have emerged and the division into lacunar (LAC) and non-lacunar (non-LAC) subtypes were proposed with the intent of identifying different pathogenic and risk factor profiles. First such information was provided by Fisher fifty years ago, based on autopsy findings [4]. He proposed that lacunar strokes, asymptomatic small infarcts in striatocapsule are due to small vessel disease in the penetrating arteries and was the result of lipohyalinosis or atherosclerosis. Thus emerged the 'lacunar hypothesis' and these findings have led to studies on the two subtypes of stroke further enumerating that hypertension, diabetes and hyperlipidaemia are common in lacunar stroke with cardio embolism and large artery disease deemed less important [1,5]. But recent studies show that the risk factor profile is not different in stroke subtypes questioning the validity of lacunar hypothesis [6-8]. Further data suggest that genetic predisposition might influence the type of stroke in patients with similar vascular risk factors [9].

LAC are commoner in Asians and Japan reports a 50-60% incidence among ischaemic strokes compared to 16-38% in European and North American populations [1,13]. Reasons for this difference is not clear and the pattern in Sri Lanka is not known. There is only one study on stroke subtypes from Sri Lanka [10]. This study showed a LAC occurrence of 41% among ischaemic stroke. Studies show that the early death rate as well as the risk of recurrence and disability are higher in non-lacunar strokes than lacunar strokes [5,8,11].

Aim of our study was to compare the risk factors, demographic factors and the outcome in lacunar and non-lacunar stroke patients admitted to Colombo South Teaching Hospital.

Methods

We recruited all ischaemic stroke patients from the stroke registry at Colombo South Teaching Hospital from the 01st March 2012 to 30th June 2013. This registry established in 2012 includes all stroke admissions to medical wards in the hospital. All patients had neuro imaging (CT brain). Stroke subtype was determined according to the TOAST classification [12]. These patients were further subdivided to lacunar and non-lacunar stroke by the treating physician depending on the imaging findings and clinical presentation. LAC was assigned if the following criteria were met: a) estimated

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