

## Stroke prevention and treatment series

### PART 2: EPIDEMIOLOGY

Nearly 6 million people died from strokes in 2005, and that number is projected to reach 7.8 million by 2030 if the world fails to take concerted global action.<sup>1</sup> In their qualitative survey of current government prevention programmes, treatment standards, and national research and stroke association activities in eight countries, together with the WHO's stroke prevalence data, the Action Group on Stroke is a Catastrophic Disease has developed an 8-point worldwide call-to-action plan for this preventable, catastrophic illness.



Narrowing the gap between scientific knowledge and medical understanding of stroke and treatment worldwide is a cornerstone recommendation of the Action Group. A key finding highlighted in their report entitled *Stroke Prevention & Treatment: Turning Knowledge into Practice* is that the fundamental definitions of stroke vary among physicians in developed and developing countries alike.

#### Vascular or Cerebral?

A prominent finding of the 8-country report was that country to country, and even within various medical communities in each country, the very definition of stroke and approach to its management is variable. In Germany, Poland and Italy, stroke is primarily considered as a cardiovascular disorder, while French physicians still

Table: Stroke around the world: incidence, mortality, trends and risk factors in eight countries participating in the survey report

	Incidence	Mortality	Trends	Risk Factor Prevalence			
				Smoking	Hypertension	Lipidaemia	Overweight
<b>Brazil</b>	NR	129,172 deaths in 2002	Rising incidence in women; Declining risk of dying	24.2% total pop.	28.5% total pop.	21.6% elevated cholesterol	22.5% total pop
<b>France</b>	150–240 strokes per 100,000 pop	37,750 deaths in 2002	Declining death rates & hospitalizations	34% total pop.	16% in >20 yr age group	30% elevated cholesterol in >20 yr age group	Obesity in 11% of adults and 16% of children
<b>Germany</b>	NR	172,717 deaths of 82.41 million pop.; equal to 3.9% of all deaths	Rising incidence until 2025	39.0% men, 30.9% women	26.1% men, 28.0% women	30.3% men, 27.6% women with elevated cholesterol	Obesity in 28% of >30 yr age group
<b>Italy</b>	NR	1.2 per 1000 pop.	Unstable incidence since 1999	29.7% women, 37.9% men	NR	Cholesterol 5.2 mmol/L men, 5.1 mmol/L women in 2005 and declining	Obesity in at least 12.9% men and 12.57% women in 2005, and rising
<b>Japan</b>	NR	134,952 deaths in 2002	3 <sup>rd</sup> -leading cause of death	30.9% total pop. in 2002, 4x higher in men	607,500 pop. have hypertension (male:female 1.6:1)	119,400 pop. with elevated cholesterol (male:female 1:2.6)	28.9% men, 23% women in 2002 and rising
<b>Poland</b>	177/100,000 men, 125/100,000 women	106 deaths/100,000 men, 79 deaths/100,000 women	3 <sup>rd</sup> -leading cause of death	51.5% men, 27.9% women	30–34%	Cholesterol >250 mg/dL in 16% men, 14% women aged 35–64 yr	51.1% men, 50.7% women with BMI >25 and rising in children
<b>UK</b>	150,000 per year	60,000 deaths/year; equiv. to 8% all deaths in men, 12% all deaths in women	Incidence and mortality declining	34.6% men, 34.4% women ≥18yr	37% men, 34% women	~67% adults with cholesterol >5mmol/L	58% either overweight or obese and rising
<b>USA</b>	750,000 per year	168,000 deaths/year	Incidence and severity rising, mortality declining	20.9% of adults	~1 in 3 adults	~25% adults with elevated cholesterol	Obesity in 55% total pop.

NR = not reported.

refer to stroke as a cerebrovascular accident (CVA) — a cerebral disease with a vascular cause. In the UK and USA stroke is described as an attack of the brain, but both recognize vascular disease as the cause. Neurologists may be the primary physician for stroke patients in some areas, while others recruit cardiologists and internists. Regardless of nomenclature, there is a uniform recognition that proper treatment must include both cardiovascular and neurological dimensions. The Action Group recommends that a common definition and approach be clearly incorporated into national practices and policies.

The Table shows survey results of stroke incidence, mortality, and prevalence of known modifiable risk factors that determine the disease among the eight countries. Of these risk factors, the WHO estimates that hypertension causes almost 75% of all strokes in developed countries.

### Local Situation

Asia has a higher incidence of ischaemic and haemorrhagic strokes than in the West, and is further burdened with a greater proportion of strokes caused by cerebral haemorrhage, which is associated with poor outcomes.<sup>2</sup>

The impact of stroke in Hong Kong has changed in recent decades, with the proportion of ischaemic strokes increasing to 84% by 2002. No longer the third leading cause of death after cancer and heart disease (pneumonia took over the no. 3 position in 2003), stroke fatality rates have improved significantly.<sup>3</sup> A recent retrospective study based on a stroke registry of nearly 800 acute episodes occurring between 1996 and 1998 examined the long-term outcomes of first-ever stroke in Hong Kong.<sup>3</sup> At 30 days after initial stroke, mortality and recurrence rates were about 15% and 1%, respectively. Long-term prognosis is poor: of the patients who survive that first month, at the 5-year mark 21% will have had a recurrent stroke, almost 40% will have died, and 10.7% will

be dependent in activities of daily living. The authors cite the overemphasis on subtype-specific risk factors, favouring instead the careful control of risk factors for both ischaemic and haemorrhagic strokes to prevent recurrences.<sup>3</sup>

Early mortality rates might be expected to drop dramatically if Hong Kong were to adopt a comprehensive stroke unit approach to patient care. In a study of Chinese patients with moderate-to-severe acute stroke in Singapore, mortality in the stroke unit group was 3.3%, compared with 17.2% for the general ward group after 28 days.<sup>2</sup>

In the recently published Hong Kong Cardiovascular Risk Study, which followed a local Chinese population of nearly 3000 adults for over 8 years, the proportion of subjects with metabolic syndrome (defined as having 3 or more of hypertension, hyperglycaemia, hypertriglyceridaemia, hypo-HDL cholesterolaemia, and central obesity) was 17.6% overall, jumping to 39.8% in patients aged 65–74.<sup>4</sup> Combined with a finding that 47.8% of males and 4.5% of females in this representative population-based study were smokers, the prevalence of risk factors for stroke in Hong Kong's ageing population is a wake-up call to action.

Next month's article in the *Stroke Prevention and Treatment Series* will focus upon government and collaborative group movements to increase public awareness and slow the rising number of strokes worldwide.

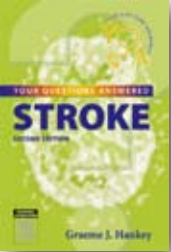
### References

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This month in a simple, easy to download PDF, the following questions will be answered:

- *What is the incidence of stroke and transient ischaemic attack?*
- *What is the prevalence of stroke?*
- *What is the mortality rate of stroke?*