A GROWING GLOBAL BURDEN

Stroke is a major public-health problem that tends to affect poorer countries more and leaves richer countries with ballooning medical costs. Yet it is often preventable. By Zoë Corbyn.

ROOTS OF STROKE

A stroke occurs when blood flow to the brain is interrupted, either by a blockage or a burst vessel. Without oxygen-rich blood, the brain cells die and damage starts to show in the parts of the body controlled by those cells.

Frontal lobe

Controls movement, personality, behaviour, language, decision-making and short-term memory. A stroke in the right hemisphere affects movement in the left side of the body, and vice versa.

Parietal lobe

Controls speech and sensation (touch and pressure).

Occipital lobe

Controls vision.

Cerebellum

Controls balance and coordination.

Brain stem

Controls vital functions such as breathing and heartbeat. Although rare, strokes here are the most life-threatening and can leave people in a vegetative state or with severe impairments.

Temporal lobe

Controls hearing, speech and long-term memory.

Ischaemic stroke

Occurs when an artery feeding the brain becomes blocked by a blood clot or a build-up of fatty deposits. It is the most common type of stroke, but is less likely to be fatal. Risk factors are varied and treatment is available.

Haemorrhagic stroke

Occurs when a blood vessel bursts in the brain. It is less common than ischaemic stroke but more likely to be fatal. It often results from uncontrolled hypertension, and the only treatment is surgery to stop the bleeding, relieve pressure and bypass the ruptured vessel.

Transient ischaemic attack

TIA or 'mini-stroke' occurs when blood flow to the brain is interrupted only briefly. Most TIAs last less than 5 minutes, after which symptoms disappear. A TIA is often warning of a full-blown stroke.

33M

people are living with the effects of stroke.

OUT OF CONTROL

Haemorrhagic stroke presents less of a burden in high-income countries because they tend to have better control over high blood pressure, a dominant risk factor for this type of stroke.

LIFESTYLE CHOICES

Some risk factors cannot be controlled, such as age, sex and ethnicity. However, ten factors are collectively associated with nearly 90% of the burden, and all can be mitigated.

Interventions that reduce blood pressure and smoking, and that promote physical activity and a healthy diet, could substantially reduce the burden of stroke.

DEADLY TRENDS

Stroke is responsible for roughly one-tenth of deaths, making it the second most common cause after heart disease worldwide. Death rates are highest in Eastern Europe, Russia and southeast Asia, regions that tend to lack specialized health services for treatment.

AGE CONCERN

Both incidence and mortality are falling in high-income countries. But prevalence is rising, particularly in high-income nations.

FINANCIAL TIMES

Direct medical costs are expected to rise substantially in the United States because prevalence will increase as the population ages.

Sources: Out of control: R. V. Krishnamurthi *et al. Lancet Glob. Health* **1**, e259–e281 (2013). Lifestyle choices: M. J. O'Donnell, *et al. Lancet* **376**, 112–123 (2010). Deadly trends and Age concern: V. L. Feigin *et al. Lancet* **383**, 245–255 (2014); World Health Organization; US Centers for Disease Control and Prevention. Financial times: B. Ovbiagele *et al. Stroke* **44**, 2361–2375 (2013).