At the heart of stroke care

Stroke units are the foundation of timely and comprehensive care, write Nicola Cogan and Suzanne Greene

Stroke is the leading cause of adult disability and the third leading cause of death worldwide. It is also a formidable health challenge for patients, their carers and health services. Approximately 10,000 people are admitted to hospital in the Republic of Ireland each year with stroke as a primary diagnosis, with 80% over the age of 65.¹ Acute stroke has a high mortality of 10% at one month and 30% at three months. Currently, older people (over 65) account for slightly more than 12% of the total population. The CSO predicts that Ireland’s rate of over 65s will constitute 16.4% of the population by 2026. By 2020, stroke mortality may almost double as a result of this increase in the proportion of older people.

It is estimated that over 30,000 people in Ireland are survivors of stroke, many of whom have significant residual disability including hemiparesis (48%), the inability to walk (22%), need for help with activities of daily living (24-53%), clinical depression (32%) and cognitive impairment (33%).² Many strokes are preventable, and research has shown that fast and effective treatment with thrombolysis, aspirin and acute stroke management can ‘rescue’ brain tissue, significantly reduce further damage and prevent death and disability.

Services for coronary heart disease have been well established in Ireland for many years,³,⁴ but until recently there was no national strategy for the organisation of stroke services.

In April 2008, the Irish Heart Foundation published the first ever Irish National Audit of Stroke Care (INASC).⁵ The audit was the country’s first official overview of stroke services in hospitals and the community. Its findings confirmed that services for stroke patients in Ireland were inadequate and that there was a potential to prevent death or disability with better stroke services and in particular with the provision of stroke prevention/TIA clinics, acute stroke unit care and emergency thrombolysis.

The organisational part of the audit revealed serious shortcomings in stroke unit care in Ireland. It identified just one unit – according to the definition set out in the UK audit of stroke care⁶ – representing just 3% of Irish hospitals, compared with almost 91% of hospitals in the UK having such units for stroke. Provision of beds for stroke was also under-resourced, with just 0.03 beds per stroke patient compared with 0.86 in the UK.

As stroke unit care is of benefit to all stroke patients and subtypes of stroke, the inadequate provision of stroke unit care is contrary to accepted international guidelines on the management of stroke.⁷ The Stroke Unit Trialists’ Collaboration demonstrated that, within clinical trials, there were fewer deaths and less morbidity for those patients admitted to stroke units.⁸

Based on incidence data, the trial estimated that patients managed on non-specialist wards had a 14-25% higher mortality rate than those
managed in stroke units. Currently, the national cardiovascular strategy Changing Cardiovascular Health (DOHC 2010) sets out the blueprint guiding the development of stroke services nationally, including the development of stroke units in the acute hospital sector.

Stroke units are the foundation of timely and comprehensive stroke care in hospital and are a minimum standard internationally for audit and accreditation of stroke services. A stroke unit can be defined as: “a discrete area of a hospital ward that exclusively or principally takes care of stroke patients and is adequately staffed by a specialist multidisciplinary team with the capacity to monitor and regulate basic physiological functions such as heart rate and rhythm, arterial oxygen saturation, blood pressure and blood glucose”. For core requirements of a stroke unit, see Table 1.

The stroke service at Tallaght Hospital arose from the first ever acute stroke service in the Republic of Ireland set up in the Meath Hospital in 1996, within the Department of Age-Related Healthcare. The service consists of a dedicated multidisciplinary team that adopts a collaborative approach to stroke care. Prior to 2009, the stroke service at Tallaght Hospital already encompassed many of the core elements required to deliver quality stroke care, such as a 24-hour thrombolysis service, access to specialist physicians and a dedicated multidisciplinary team, a TIA clinic and access to diagnostics and radiology. The absence of a dedicated stroke unit was the most notable area of the service that required development.

Development

On June 26, 2009 the then Health Minister Mary Harney officially opened the acute stroke unit at Tallaght Hospital. The acute stroke unit (ASU) is located in the William Stokes unit, an already established department for the acute/rehabilitative care of the older person. The ASU has a bed capacity for a maximum of nine patients. These are divided into four designated beds for acute patient monitoring and five post-acute stroke beds (this includes one isolation room).

Acute stroke management, admission and discharge policies were developed to facilitate the safe co-ordination and timely admission to and

---

**Table 1**

**Core requirements for a stroke unit**

- The capability to perform continuous ECG and physiological monitoring (blood pressure, SaO2, glucose) and monitoring of neurological status by staff in acute stroke management
- An operational policy to ensure that beds are available to receive acute suspected neurovascular and stroke admissions to monitored beds on the unit
- The ability to deliver intravenous thrombolysis, monitor and manage complications post-administration of t-PA
- Immediate access to a consultant, specially trained in the acute management of stroke patients including the delivery of thrombolysis on a 24/7 basis
- Adequate and appropriate staffing. This includes a designated lead consultant stroke physician working within a stroke network group. In addition, stroke units should have adequate multidisciplinary teams of staff to cater for the complex needs of patients with stroke, many of whom will have high levels of dependency. Such teams should include specialist nursing, physiotherapy, occupational therapy, speech and language therapy, social work, clinical nutrition and clinical psychology/neuropsychology
- Prompt access to additional specialist advice and in particular cardiology, radiology, haematology, psychiatry, palliative care and pharmacy services
discharge from the ASU, imperative to facilitate maximal appropriate use of a scarce resource.

Operational policy

All stroke patients should be admitted to an acute stroke unit. The ASU at Tallaght Hospital accepts patients of all ages (over the age of 16 years) for the treatment, multidisciplinary assessment and rehabilitation of acute stroke. All stroke subtypes are suitable for admission to the acute stroke unit following liaison with the duty stroke consultant.

This includes TIA patients requiring emergency carotid endarterectomy. Patients who experience a new onset acute stroke while an inpatient elsewhere in the hospital are assessed by the stroke service and transferred to the ASU as appropriate.

Any patient requiring thrombolytic treatment is admitted directly to the ASU from the ED, where thrombolytic therapy will usually have been commenced by the on-call stroke consultant in person or by our network telemedicine service if out-of-hours. Patients in the post-acute phase of stroke, whose condition deteriorates, are re-assessed by the duty stroke consultant and usually re-admitted to the ASU. In line with other operational policies of similar specialised acute emergency units, one bed is generally kept available at all times for admission of patients requiring thrombolysis.

Patients spend a minimum of 48-72 hours in the ASU. However, each patient’s individual condition dictates their length of stay. All discharge decisions are made by the duty stroke consultant. All acute stroke patients should be admitted to the ASU, and therefore, acute stroke patients who are deemed medically stable and suitable for discharge from the unit are prioritised for transfer to other beds in the William Stokes unit, on other hospital wards or the ARHC/stroke-service rehabilitation unit at Peamount Hospital. After discharge from the ASU, patients remain under the care of the admitting stroke service consultant.

In line with the recommendations of both the National Cardiovascular Health Policy 2010-2019 and the Irish Heart Foundation National Stroke Strategy, stroke unit care is delivered by a dedicated multidisciplinary team. This team includes a full medical team led by a consultant stroke physician, specialist nursing staff, a clinical nurse specialist in stroke, a speech and language therapist, a clinical nutritionist, a social worker, an occupational therapist and a physiotherapist. More recently, a neuropsychologist and a second clinical nurse specialist have been appointed.

As identified in the IHF National Clinical Guidelines and Recommendations for the Care of People with Stroke and Transient Ischaemic Attack 2010, stroke units should be adequately staffed by nurses specially trained in the management of patients with acute stroke. Nursing people with stroke requires nurses with knowledge, interest and skills to deliver effective care and rehabilitation and requires education and training in stroke care.

To achieve a high standard of expert nursing care in the ASU, one of the first ever stroke courses in Ireland was devised in Tallaght Hospital and was awarded An Bord Altranais category 1 approval. The course was delivered by both internal and external experts in stroke to cover all aspects of acute stroke care from pathophysiology to assessing neurological function, cardiac rhythm recognition, delivery of acute thrombolysis and prevention of neuromedical complications of stroke. The course was undertaken by stroke unit nurses in Tallaght Hospital and nursing staff from the wider Dublin Midlands Stroke Network Partnership.

Since opening of the ASU in 2009, 551 patients have been admitted to the acute stroke unit in the hospital with patients receiving comprehensive specialist care. Mortality from ischaemic stroke in 2010 was 7.8%, which compares very well with international results.

Nicola Cogan is a clinical nurse specialist and Suzanne Greene is a clinical nurse manager at Tallaght Hospital, Dublin

References on request