OF VASCULAR NURSING

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## Service provision for stroke: The Greek paradox

JOURNAL

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Stroke remains a leading cause of mortality, as well as of subsequent serious long-term physical and mental morbidity. This places special demands for updated clinical excellence and optimum organization of stroke care services. Stroke units have been shown to improve patient outcomes. Thus, many western countries have developed and implemented sophisticated stroke facilities and corresponding public awareness strategies. These cannot be easily "translated" in Greece due to special features on the hospital administration system such as a unique rotation system for acute admissions and long-standing austerity. Yet, despite adverse conditions, clinicians within the Greek health care system have been exceeding themselves in their attempt to provide optimum care outcomes. An example of such efforts is the improvisation of stroke bays (SBs) as part of a medical or neurology ward, providing sophisticated treatments. New centralized policy decisions are now needed in order to improve stroke services nationwide. These should be tailored to the country's geography and health care mapping especially as there is already considerable technical knowhow and local efforts in place. A pragmatic solution would be to create a "grid" of services for stroke, by providing a comprehensive stroke centers in each of the two major cities and SBs at a prefectural level. Once these are established, more efforts should be taken to educate the public on stroke recognition and subsequently on facilities available. (J Vasc Nurs 2017; 1:1-5)

"Stroke unit" terminology covers a wide range of stroke services thus making international comparisons or affiliations, complex and confusing due to a wide variety of stroke care delivery models with services ranging from low key conventional care to highly sophisticated facilities.<sup>1,2</sup> Yet, all health care professionals (HCPs) know that in all instances, it is vital that the stroke patient is brought to an appropriate facility as soon as possible after the initial event in order to maximize therapeutic outcomes. However, in order for prompt hospitalization to happen, it is essential that the general population is aware of the signs, the symptoms, and the urgency of the condition.<sup>3</sup>

Still, there is controversy among experts on the unit's name, ranging from a modest "stroke unit" to a more sophisticated "hyper-acute stroke unit" or even a "comprehensive stroke unit." Also, confusion arises over a unit's mission, that is, ranging from advanced acute treatments and care for up to a few days to longer term services, including rehabilitation as well.<sup>4</sup> Yet, despite controversies, a wide consensus among experts is that a dedicated stroke facility should provide and include the following essential features, offered within a geographically defined hospital ward, dedicated for stroke patients only: swift and comprehensive assessment including direct access to appropriate scanning and

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1062-0303/\$36.00

Copyright © 2017 by the Society for Vascular Nursing, Inc. http://dx.doi.org/10.1016/j.jvn.2017.03.003 imaging; active physiological management including for example effective control of blood glucose or blood pressure levels; highly skilled nursing care as part of a dedicated interprofessional staffing—team; early mobilization and avoidance of bed confinement; early setting of rehabilitation; early involvement of family and carers; early assessment and planning of discharge needs; and regular programs of staff education and training.<sup>5</sup>

Moreover, the benefits of organized stroke unit care can be translated widely, even to smaller rural hospitals whereby therapeutic goals could be achieved at a modest cost. In New South Wales, Australia, a new stroke paradigm was implemented in 2004 whereby the rollout of stroke units from central to smaller, rural hospitals, therefore establishing a network of seamless stroke services network, resulted in death decreasing from 13.8% to 10.5%. Similarly, there was an increase of home discharges from 38.8% to 44.5%. These clinical benefits were also claimed to have been achieved at a modest cost.<sup>6</sup>

Yet, all of these facilities may be better utilized if the public is aware of their existence and stroke general pathophysiology per se. Thus, public awareness interventions for stroke signs and symptoms such as the FAST (Facial weakness, Arm weakness, Speech problems, Time to act immediately) campaign in the UK showed a notable decrease in prehospital delays, providing the potential to improve stroke outcome.<sup>7</sup> The campaign conveyed a simple message by a series of quick questions, tailored for the untrained public, as follows:

- Facial weakness: Can the person smile? Has their face fallen on one side?
- Arm weakness: Can the person raise both arms and keep them there?
- Speech problems: Can the person speak clearly and understand what you say? Is their speech slurred?

• Time: If you see any one of these three signs, its TIME to call the emergency services.

Similarly, public health efforts to educate people in the United States showed that knowledge of stroke, that is, ability to name three warning signs, improved only slightly from 5% in 1995 to 16% in 2005. Furthermore, it was made clear that public awareness messages in the future should not focus just on stroke warning signs but on risk factors and more importantly on the availability of urgent treatments for stroke (Kleindorfer et al, 2009).<sup>8</sup>

However, another public awareness survey in the United States which looked at the five stroke warning symptoms (ie, sudden numbness or weakness of the face, arm, or leg, especially on one side; sudden confusion or trouble speaking; sudden trouble walking, dizziness, or loss of balance; sudden trouble seeing in one or both eyes; and a severe headache with no known cause) showed that all five stroke warning symptoms were correctly identified by 43.6% of the respondents.<sup>9</sup>

Additionally, studies from Australia indicate that delays in presentation to hospital are primarily due to lack of public awareness of stroke symptoms and signs, and many citizens also do not understand that seeking treatment is urgent.<sup>10,11</sup> In return, the choice and timing of treatment and eventual outcomes for patients are affected as advanced treatments can only be administered within limited time windows.

In these lines, the degree of acute stroke awareness in Northern Greece was concisely revealed in a letter in the International Journal of Stroke by Hatzitolios et al.<sup>12</sup> The authors undertook a random-digit-dial telephone survey including open-ended, unaided questions which showed that approximately one-third of the sample population (n = 1,058) could correctly identify at least one major stroke symptom. Still,  $24 \cdot 1\%$  of the sample did not know any stroke symptoms, whereas  $13 \cdot 9\%$  did not know any risk factor for stroke. However, nearly all (98.1%) reported that they would take swift action and transfer the patient to the nearest hospital either by ambulance or private means despite almost a quarter of the respondents being unaware of any stroke symptoms. Thus, the authors confirmed the pressing need for campaigns to educate the public on stroke symptoms and risk factors.

The aim of this paper is to provide a concise and critical overview of the organization of stroke services and policy gaps of acute stroke delivery in contemporary Greece and critically describe merits and shortcomings.

## STROKE CARE IN GREECE

Stroke care in Greece today is diverse and routinely assigned to ordinary neurologic or medical wards. Some attempts have been made to reach a degree of specialization in small stroke units (locally inspired), generally termed "stroke bays (SBs)," within a neurology or a medical ward. These bays have a capacity of 3–6 beds and serve as an integrated part of the corresponding ward where a specific neurologist or internist may have a specialized training (usually from abroad) or special interest in stroke care. Treatment in the SB may include thrombolysis and close monitoring, but the staff, that is, nurses and other HCPs, are not dedicated to the bay per se as they would need to rotate and serve the rest of the neurology or medical ward respectively. Surgical cases, that is, cerebral hemorrhage, would be treated there, and if occurred in the bay, the patient would be transferred to a neurosurgical facility.

Thus, the two SBs to date in Northern Greece are situated in two (out of seven) hospitals of the cocapital Thessaloniki (approximately 1.5 million population); hence, the vast majority of patients are still admitted to ordinary neurology or medical wards. Therefore, the rest of the population (2 m) of the greater Northern Greece area, that is, Central Macedonia, is without specialized services for acute stroke care.

Yet, even the city inhabitants themselves are not guaranteed access to specialized stroke services due to the unique Greek centralized hospital rotation system whereby pairs of hospitals are on call for consecutive 24-hours periods. This has been a result of a long-standing centralized infrastructure of the Greek health care system in combination with an imbalance of tertiary versus primary care, only to be made worse due to long-standing recession. In this context, a unique-to-Greece rotation system for hospital emergencies evolved, whereby hospitals take turns to be on 24-hour duty for new admissions, while the rest of the city hospitals' Accident & Emergencies departments are idle, offering continuing care for in-patients. This arrangement creates numerous logistic problems as a hospital may have to face pressure on bed availability and other resources, resulting often in early discharges in order to free beds in anticipation of an influx with the next rotation on-call period. Even, worse, it might be that none of the two SBs in the city is on call and therefore access to specialized stroke treatment is impossible for that particular period.

Thus, although there is some basic stroke infrastructure in Greece, central policies which define ward allocation by age in combination with the rotation system for hospital admission seriously obstructs seamless patient-oriented care. The small pockets of clinical excellence are subsequently "lost" in a hectic health care delivery environment whereby expertise is not fully exploited.

If the rotation system is to prevail one pragmatic solution would be to set up independent stroke centers (one for each major Greek city and/or in central geographical locations), whereby constant specialized stroke care could be made available 24/7 and equally accessible to all. This paradigm of care distribution coupled with telestroke services as developed and implemented in the United States optimizes available resources and expertise while widely improving patient outcomes.

## POLICY IMPLICATIONS FOR STROKE PROVISION

Stroke units are relatively rare within a worldwide perspective, despite sound evidence of their overall effectiveness. However, in Greece, it is suggested that a simple quasistroke unit setting, that is, an SB as described above, may provide effective treatments for stroke victims mainly due to early interventions, careful monitoring, and improved staff interest and thus could be implemented more extensively not only in Greece but in certain geographical regions of the world where health care resources are scarce until more sophisticated stroke units can be budgeted and fully implemented.

Therefore, there is an urgent need for a clear but pragmatic stroke policy in Greece with considerations to the Download English Version:

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