EDITORIAL

"Code Stroke" Protocols: A call to action

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Ischemic stroke is the third most leading cause of death world wide and the annual deaths due to stroke is roughly 5 million[1]. Every year, there are about 750 000 new strokes in Europe and a similar number in the USA. Each year, more than twice as many women in the United States die of stroke than breast cancer, and in women older than 45 years, stroke is more common than heart attack[2]. Fully one third of people who survive a stroke will have a recurrence. Stroke is not restricted to developed countries and recent surveys show that it is a major health problem in developing countries as well. Stroke is the number 1 cause of disability: 20% of patients need help walking, 70% cannot return to their previous jobs, and 51% are unable to return to work[3].

Despite the devastating nature of this disease, treatments are still dismayingly few. Thirteen years after it was first approved, tissue plasminogen activator (t-PA) remains the sole pharmacologic agent for clot dissolution. Unfortunately, due to the many exclusion criteria, it remains an option only for approximately 5% of all patients with ischemic stroke. The more recent advent of endovascular options, has expanded the therapeutic window from 3 to upto 12 hours, making acute intervention for ischemic stroke potentially available to more stroke victims[4]. However, as has been reported by various studies, the physician's ability to offer such interventions is still dependent on the patient's ability to present in a timely manner.

In spite of the staggering disease burden statistics mentioned above, the American Stroke Association, found that only 2% of the US population name stroke as the disease or health condition concerning them the most, and 50% of adults do not even believe they are at risk for stroke. A recent emergency department study of over 400 patients investigated the knowledge of stroke signs and the need to present to medical attention promptly in an educated community[5]. The results highlighted a persistent knowledge gap: 58% did not think they were having a stroke following their symptom onset, and 45% actually felt time was not of essence in presentation after a stroke.

Given this state of lack of awareness, and limited time windows for intervention, any process that can reduce delay becomes of paramount importance. This issue of Emergencias features a report from Dr. Gomez-Angletas and Colleagues[6] entitled "Results achieved with the implementation of a stroke code (SC) system in a large hospital: role of the emergency department and analysis of the learning curve." In this study, the authors report on the implementation of stroke code protocol consisting of a prehospital phase (encompassing four large hospitals in the urban Barcelona region) and an intrahospital phase (encompassing one out of these four hospitals). The prehospital phase consisted of prehospital notification, and rapid ALS ambulance transport to the nearest hospital capable of administering t-PA. The intrahospital phase consisted of a rapid ED evaluation, including vital signs, capillary glucose measurement, electrocardiogram, NIHSS, and brain CT. The objective of the study was to compare the percentage of stroke patients treated with t-PA during the time periods that consisted of only the intrahospital protocol (period A) and that which included the prehospital component as well (period B). The authors report that the overall percentage of patients who received fibrinolytic therapy (t-PA) was not significantly different in period B. While this may be viewed as a lack of effectiveness of the SC, several important points that highlight the success of the SC should be noted. First, there were signifi-

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cantly more SC activations, and completed activated SCs. What these results convey is that the number of people who were captured by the implementation of the combined pre- and intrahopsital SC more than doubled, giving the opportunity for many more patients to be able to avail of fibrinolytic therapy. The capturing of more patients in the combined pre- and intra- hospital SC underscores the success of the SC in heightening the awareness of stroke as an emergency. For those patients who ultimately did not receive t-PA, the SC was still contributory to their overall care, as it allowed the institution of brain optimization measures such as treatment of vital sign instabilities, glucose abnormalities, and facilitation of prompt inpatient services. Dr. Gomez-Angletas and colleagues are to be congratulated on their fine work, which serves to operationalize the emergent evaluation of stroke for patients in Barcelona.

While additional research will help to further refine the "code stroke" concept, there is sufficient data[3,7] to justify its implementation now. The concept needs to be embraced at major medical centers worldwide.

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