Setting up a Primary Stroke Center in Bogota-Colombia. An International Collaborative Experience

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Introduction

According to the 2015 report of the Colombian Ministry of Health and Social Protection (MHSP), cerebrovascular disease in Colombia has a global mortality rate of 32.8 / 100,000, an approximately incidence of 97.4 / 100,000 and an estimated disability-adjusted life-years (DALYs) lost of 364.5. The global need to standardize stroke management has led to the creation of Primary Stroke Center (PSC) Certification programs like the one regulated by the Joint Commission International (JCI).

Objectives

Based on the agreement between Johns Hopkins and Fundacion Santa Fe since 2011, the directives at the Fundacion supported the development and certification of the Stroke Program in 2013

Materials and Methods

In 2008, in hopes of providing a holistic stroke care to improve patient's prognosis and quality of life, the Fundacion Santa Fe de Bogotá University Hospital (FSFB) developed the first institutional stroke diagnosis protocol along with the establishment of a stroke code. The increase in number of stroke patients lead to the creation of a 24/7 open stroke center with both intravenous and endovascular thrombectomy capabilities. In 2016, the Johns Hopkins Comprehensive Stroke Center (JHCSC) and the Johns Hopkins International (JHI) visited the hospital in order to improve the current practice protocols and identify breaches in the process of care of stroke patients (**Fig.1**). Using a standardized evaluation tool, relevant gaps were identified and taken care of by means of short-term improvement strategies developed and applied by the FSFB stroke team before submitting the formal application as a certified Primary Stroke Center (**Fig.2 & 3**). Implemented strategies that improved the quality of care and patient-centered outcomes were as follows (**Fig.4 & 5**).

Results

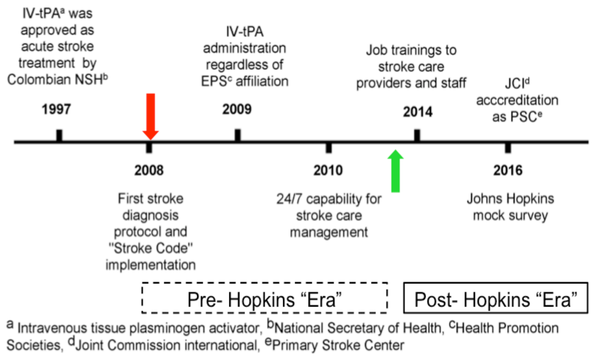

Figure 1 - The timeline for Stroke Center Certification. Improving stroke care, a time-evolving process

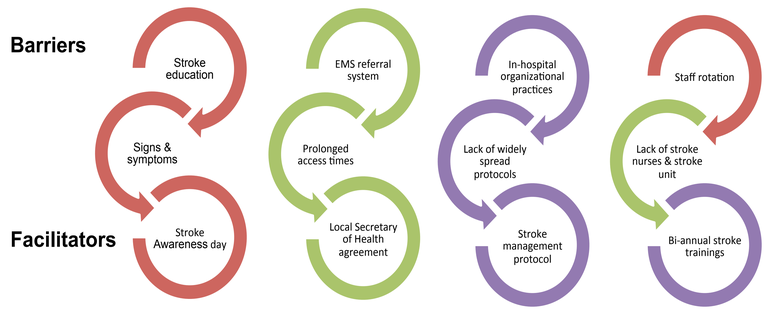

Figure 2 - Identified barriers, descriptions and facilitators towards certification
We identified some barriers and facilitators: mainly in stroke education, quality and consistency in the continuum of the stroke care

Identified gaps	Improvement strategies
Misidentification of stroke patients in the emergency waiting room	Emergency non-medical staff training regarding acute stroke symptoms, stroke signs and prompt identification by stroke code activation. An ER waiting room poster with stroke symptoms and signs
Unawareness of IV-tPA as a high risk drug within the emergency department by pharmacy staff (pharmacist technicians)	IV-tPA risk category upgrade and education of the emergency room pharmacy staff regarding the safe use of IV-tPA
Lack of unification and wide knowledge of the swallowing screen evaluation protocol for stroke patients	Implementation of the GUSS Swallowing Screen Test, increasing diffusion and promoting the general knowledge of this test between medical and non-medical staff.
Lack of formal registration regarding intravascular thrombectomy training of neurointerventionalists	Creation of a formal registry for the training sessions in thrombectomy performed by neurointerventionalists
Insufficient stroke education tools for stroke inpatients, families and care staff	Development of stroke awareness tools available for stroke inpatients, families and care staff

Figure 3 – Identified gaps and improvement strategies that resulted from the pre-accreditation mock survey

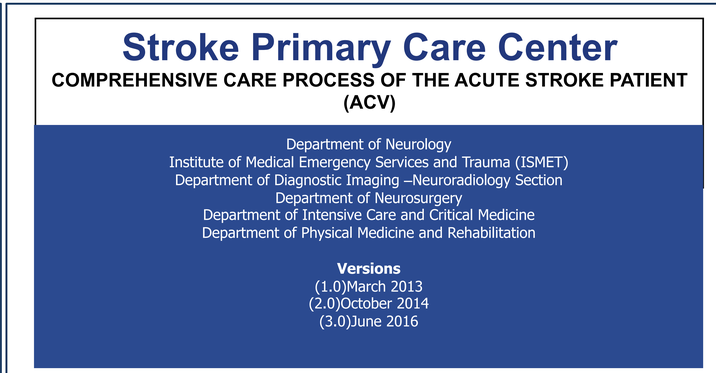

Figure 4 - Stroke Patient Care Protocol Implemented strategies that improved the quality of care and patient-centered outcomes were as follows: creation of a formal stroke management protocol, 24/7 availability of neurologists, neurointerventionalists and CT scanning and laboratory services with equal diurnal-nocturnal standards

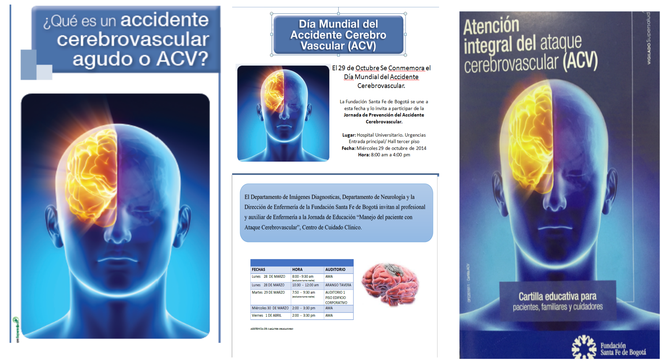

Figure 5 – Educational Material Strategies like Stroke Awareness Day and continuous job trainings. The PSC implemented a free 30 and 90-day follow-up appointment with the neurology consultants in order to evaluate outcomes, provide secondary prevention, education and adjust medical therapies.

Conclusion

The PSC was certified as the first Colombian stroke center by JCI in December 2016. Stroke is a major public health burden and it is imperative to raise awareness on the need of structured care. Identifying and overcoming barriers is essential to building a sustainable stroke care pathway. The strategies described above could serve as basis for other hospitals that wish to establish a PSC. International collaboration between institutions like JHI and FSFB have shown a successful and replicative model that increases the quality of stroke care in countries like Colombia.