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"CORRE" and "CORRE+", a Colombian strategy to educate and teach Spanish Speaking people how to identify acute stroke symptoms in Spanish language

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Abstract

Introduction: Early recognition of stroke symptoms is crucial to reducing its clinical impact. In English-speaking countries, acronyms such as "FAST" and "BE-FAST" have proven to be effective tools for public education. However, the absence of equivalent terms in Spanish motivated the creation of versions adapted to the cultural and linguistic context. Within this framework, Colombia developed "CORRE" (the Spanish word for "Run") and its extended version "CORRE+," inspired by these international tools, to enhance the recognition and response to stroke symptoms among Spanish-speaking populations

Objective: To describe Colombia's experience with the "CORRE" mnemonic, used to identify acute stroke symptoms, and also to introduce the modified acrostic "CORRE+", developed to improve its sensitivity.

Methods: Two stroke symptoms acrostics were created, based on the "FAST" and "BE-FAST" tools, but adapted into Spanish for use among the Colombian and Latin American populations.

Results: "CORRE" and "CORRE+" stand for "Cara torcida (uneven face), Ojo/alteraciones visuales (eyes/visual alterations), Rápida debilidad (sudden weakness or numbness), Raro al hablar (sudden slurred speech), Equilibrio alterado (sudden loss of balance), Emergencias llamar (call Emergency Services)". These tools have been shown to be effective in educating the Colombian citizens about stroke symptoms.

Conclusion: "CORRE" and "CORRE+" are innovative initiatives that aim to educate Hispanic people in order to recognize stroke symptoms and consult the emergency services as soon as possible to impact stroke's burden.

Keywords: Stroke, Education, Prevention, Public health, Healthcare, Socioeconomic disparities, Colombia.

CORRE" y "CORRE+", una estrategia colombiana para educar y enseñar a las personas hispanohablantes a identificar los síntomas de un ataque cerebrovascular agudo en idioma español

Resumen

Introducción: el reconocimiento temprano de los síntomas de un ataque cerebrovascular es crucial para reducir su impacto clínico. En países de habla inglesa, acrósticos como "FAST" y "BE-FAST" han demostrado ser herramientas eficaces para educar a la población. Sin embargo, la falta de equivalentes en español motivó la creación de versiones adaptadas al contexto cultural y lingüístico. En este marco, Colombia desarrolló "CORRE" y su versión ampliada "CORRE+", inspiradas en dichas herramientas internacionales, para mejorar la identificación y respuesta ante los ataques cerebrovasculares en población hispanohablante.

Objetivo: describir la experiencia de Colombia con el acrónimo "CORRE", utilizado para identificar los síntomas de un ataque cerebrovascular agudo, así como presentar el acróstico modificado "CORRE+", desarrollado para mejorar su sensibilidad.

Métodos: se crearon dos acrósticos de síntomas de ataque cerebrovascular, basados en las herramientas "FAST" y "BE-FAST", pero adaptados al español para su uso entre la población colombiana y latinoamericana.

Resultados: "CORRE" y "CORRE+" significan "Cara torcida, Ojo/alteraciones visuales, Rápida debilidad, Raro al hablar, Equilibrio alterado, Emergencias llamar". Estas herramientas han demostrado ser efectivas para educar a los ciudadanos colombianos sobre los síntomas del ataque cerebrovascular.

Conclusión: "CORRE" y "CORRE+" son iniciativas innovadoras que buscan educar a las personas hispanohablantes para reconocer los síntomas del ataque cerebrovascular y acudir a los servicios de emergencia lo antes posible, con el fin de reducir su carga de discapacidad y mortalidad.

Palabras clave: ataque cerebrovascular, educación, prevención, salud pública, Colombia, disparidades socioeconómicas.

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Background

Stroke is a devastating disease that represents a major public health concern both worldwide and in Colombia. It is currently the second leading cause of death and the third leading cause of disability. Statistics indicate that one out of four people will develop a stroke (1,2). When treating it, time management is crucial, because it determines if a patient is a candidate for reperfusion therapies (3).

This pathology has evolved within the last years, and it has also been included as a public health matter due to the substantial loss of disability-adjusted life years (DALYs) and quality-adjusted life years (QALYs) associated with it. Although stroke can be a fatal disease, most of the causes can be preventable (1,4). According to the World Stroke Organization and The Lancet Neurology Commission, by 2050 the global mortality will double and increase to approximately 9.7 million, while DALYs are expected to reach 189.3 million due to the disabilities that often result from the condition (4,5).

One of the main challenges is the lack of education in promptly recognizing stroke symptoms and consulting the emergency services as soon as possible (6). Stroke is a critical, time-dependent pathology; early recognition and prompt medical attention significantly increase the chances of receiving reperfusion or revascularization therapies and lead to better outcomes (1,4). Studies have demonstrated that there are differences among patients and their socio-economic status. Individuals with low socioeconomic indicators were associated with a higher prevalence of cardiovascular comorbidities, increased mortality, and delayed hospital arrival, which therefore lowers the probability of accessing reperfusion therapies (7,8).

The international consensus of the World Stroke Organization evidenced that the recurrence of stroke globally (20-30%) is highly associated with the lack of patient education. Many individuals are unaware of the risk factors involved with the first stroke, the prognosis of recurrence, or the importance of adherence to treatment (4,9). This is also related to the fact that in many countries these education strategies are not available. In addition, many physicians and non-neurologist healthcare professionals lack training and often fail to recognize stroke symptoms properly (10,11).

To address this problem, tools such as acrostics have been created all over the world in order to make people aware of stroke symptoms and to encourage them to seek medical attention immediately. International experiences, like the use of the mnemonic "FAST" in the United Kingdom, have shown that massive education campaigns and social media initiatives help people seek care faster, as the median time to seek medical attention fell from 53 to 31 minutes (11,12). Additionally, the World Stroke Organization's most recent action plan recognizes the power of digital technologies, apps, and social media in stroke prevention (4). The acrostic "AHORA" was recently developed in the United States as a tool in Spanish to promote early detection of stroke symptoms among Spanish-speaking populations (13).

Initiative

In Colombia, an initiative was launched in 2019 by the Colombian Association of Neurology to address this problem. Dr. Luis Fernando Roa, a vascular neurologist, developed the acrostic "CORRE" to educate people from all regions, helping them easily understand and promptly identify stroke symptoms. "CORRE" stands for "C = Cara torcida (Face. Sudden, uneven smile or one side of the face drooping); O = Ojo, alteración de la visión (Eyes. Sudden, trouble seeing in one or both eyes or double vision); R = Rápida debilidad de un brazo o pierna (Arms or legs. Sudden weakness or numbness in one arm or leg); R = Raro al hablar (Speech. Sudden slurred speech, difficulty speaking, or trouble understanding others); E = Emergencias, llamar 123 (Call Emergency Services 123)" (Figure 1). This mnemonic is particularly useful for the Hispanic population, as it provides an easy way to understand and remember stroke symptoms, regardless of socioeconomic status (14).

A cross-sectional study in Colombia on stroke knowledge among the general population highlighted the urgency of public education about stroke recognition and management. The study found that the majority of citizens (75.8%) were unaware about stroke symptoms and the spectrum of available reperfusion therapies. A survey comparing different stroke scales in Spanish was conducted in order to determine which one was easiest for the public to recall. The "CORRE" scale was the most remembered (35.22%), in comparison to other mnemonics like "FAST", "RÁPIDO", and "CAMALEÓN" (15).

Multiple campaigns have been carried out all over the country in conjunction with the Colombian Association of Neurology (CAN), the Colombian Network Against Stroke (RECAVAR), and the Colom-

Figure 1. CORRE

Note. C = Cara torcida (Face. Sudden, uneven smile or one side of the face drooping); O = Ojo, alteración de la visión (Eyes. Sudden, trouble seeing in one or both eyes or double vision); R = Rápida debilidad de un brazo o pierna (Arms or legs. Sudden weakness or numbness in one arm or leg); R = Raro al hablar (Speech. Sudden slurred speech, difficulty speaking, or trouble understanding others); E = Emergencias, llamar 123 (Call Emergency Services 123).

Source: Own elaboration.

bian Alliance Against Stroke. These initiatives not only educate healthcare physicians in recognizing the symptoms and immediately activating the stroke code but also educate citizens from diverse social backgrounds about the importance of seeking emergency services as quickly as possible (14,16). In addition, "CORRE" has also been an opportunity to promote healthy activities such as walks, aerobic exercises, and cardiovascular workouts, encouraging healthier habits within the population.

Nowadays, social media has gained significant importance as a tool for disseminating information, like stroke awareness and its fast recognition with audiovisual content that has been made and shared across different platforms successfully (14,16).

Recently, the acrostic was modified to enhance its sensitivity by including other stroke symptoms, similar to the "BE-FAST" algorithm. This led to the creation of the new "CORRE+", which stands for "C = Cara torcida (Face. Sudden uneven smile or one side of the face drooping); O = Ojo, alteración de la visión (Eyes. Sudden trouble seeing in one or both eyes or double vision); R = Rápida debilidad de un brazo o pierna (Arms or legs. Sudden weakness or numbness in one arm or leg); R = Raro al hablar (Speech. Sudden slurred speech, difficulty speaking, or trouble understanding others); E = Equilibrio alterado (Balance. Sudden loss of balance or coordination); E = Emergencias, llamar 123 (Call Emergency Services 123)" (Figure 2). This new algorithm aims to improve stroke detection, following the steps of "BE-FAST", which reduced missed strokes to 4.4% (17) by including posterior circulation stroke symptoms such as balance loss. Further studies in the Colombian population will determine if this new scale improves stroke symptom recognition.

Conclusions

Stroke is a major public health concern, and public education has become one of the most important aspects in both prevention and patient prognosis, given its direct impact on the timely access to reperfusion therapies, which are time-dependent.

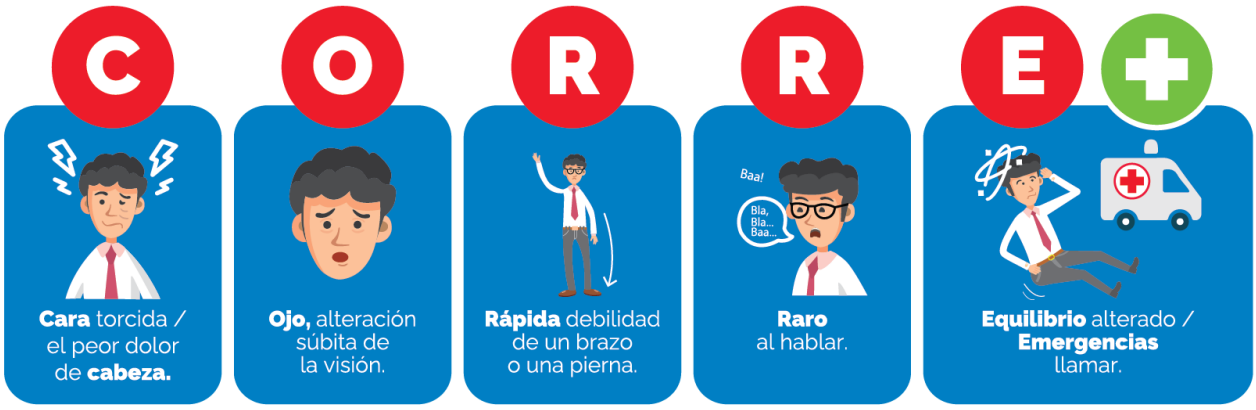

Figure 2. CORRE+

Note. C = Cara torcida (Face. Sudden uneven smile or one side of the face drooping); O = Ojo, alteración de la visión (Eyes. Sudden trouble seeing in one or both eyes or double vision); R = Rápida debilidad de un brazo o pierna (Arms or legs. Sudden weakness or numbness in one arm or leg); R = Raro al hablar (Speech. Sudden slurred speech, difficulty speaking, or trouble understanding others); E = Equilibrio alterado (Balance. Sudden loss of balance or coordination); E = Emergencias, llamar 123 (Call emergency Services 123).

Source: Own elaboration.

In conclusion, the "CORRE" initiative has been a successful strategy for increasing public awareness and recognition of stroke symptoms. Furthermore, the "CORRE+" initiative in Colombia presents an innovative strategy in stroke education and awareness, addressing not only symptom recognition but also socioeconomic barriers by teaching about stroke symptoms, its importance, and the adoption of healthy lifestyles. This holistic approach holds promise for reducing the burden of stroke in Colombia.

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