



## EDITORIAL ARTICLE

## Prevention and Cardiac Rehabilitation Program: useful and necessary tool in the treatment after stroke<sup>☆</sup>



### Programa de prevención y rehabilitación cardíaca: herramienta útil y necesaria en el tratamiento del ataque cerebrovascular

 Mónica Rincón<sup>a,b</sup>
<sup>a</sup> Rehabilitation Service, Fundación Cardioinfantil-Institute of Cardiology, Bogotá, Colombia

<sup>b</sup> Universidad del Rosario and Universidad de La Sabana, Bogotá, Colombia

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The National Health Observatory (ONS) of the National Institute of Health in Colombia (INS) in its Bulletin # 1 of December 9, 2013, states that cardiovascular diseases are the leading cause of death in the country. In the period 1998–2011, 628 630 deaths from cardiovascular disease were reported, corresponding to 23.5% of all deaths in Colombia. Of the deaths attributed to the group of selected cardiovascular disease, 56.3% were due to ischemic heart disease, 30.6% to cerebrovascular disease, 12.4% to hypertensive disease and 0.5% to chronic rheumatic heart disease.<sup>1</sup> Despite these figures and the known social and economic impact generated by these diseases, no adequate attention to cerebrovascular diseases is provided, a concern that should not be neglected and that implies a successful intervention from different medical specialties, as well as an implementation of strategies to improve the load generated by them.

A recent article published in *The Lancet*,<sup>2</sup> presents the study of regional and global burden of stroke during 1990–2010, in which is shown how its incidence increased by 12% in countries with middle and low income, while in those with high income it decreased by the same percentage. Likewise, the absolute number of people with a first

episode of stroke, deaths due to it and disability adjusted life years (DALYs) were higher and have been increasing significantly since 1990 in countries with middle and low income. Similarly, the authors of this study show how the number of DALYs lost in people less than 75 years in middle and low income countries exceeded more than five times that of high-income countries being twice in the elderly over 75 years. Thus, studies have established that stroke is the leading cause of neurological disability in adults,<sup>3</sup> and that the poor level of fitness, including a low functional capacity are the factors limiting patients to make their daily life activities and impact the risk of a new episode and increase mortality from this cause. Patients after stroke for more than 6 months have a 55–75% of the functional capacity expected for a healthy person of the same gender, age and physical condition. This decrease in functional capacity has negative effects on mobility and resistance to fatigue, and further worsens its functional performance and independence, leading to greater restriction of their participation in the community.<sup>4</sup>

Similarly, it is known that about 75% of stroke patients have heart disease sharing the same risk factors. For example, it is known that diabetes mellitus is a strong independent predictor of this condition in the first year after a transitory ischemic attack (TIA), with substantial higher stroke rate recurrence.<sup>5</sup>

On the other hand, physical inactivity and increased waist circumference are independent factors for primary stroke,

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and in regard to smoking which has causal relation with atherosclerosis, it is a factor of major and independent risk for a new cerebrovascular event.<sup>6</sup> In addition, cardiovascular disease is the major factor that limits the successful results in rehabilitation after a stroke.

This demonstrates the existence of a close relationship between coronary heart disease and cerebrovascular event in terms of etiology, associated diseases, and risk factors which in turn suggests that strategies that have been used successfully for the treatment of coronary disease may be useful for the management of this condition.

Hence the interest to draw attention to the health group that cares for patients with cardiovascular disease, in initiating the implementation of the prevention and cardiac rehabilitation programs for stroke patients traditionally focused on education, exercise and the intervention of cardiovascular risk factors.

The cardiovascular and respiratory training provided by these programs reduces fatigue, incidence of falls and fractures, while providing better compensation of energy cost of hemiparetic gait.<sup>7</sup> Similarly, reduces disability by its impact on mobility, body balance and balance, among others. Patients with this type of training improve functional independence, their perceived quality of life and mood.<sup>8</sup>

Different systematic reviews show a significant reduction of risk factors such as blood pressure, obesity, diabetes mellitus and coronary heart disease mortality, and a significant improvement in depression in patients attending cardiac rehabilitation programs.<sup>9</sup>

For the interdisciplinary health team in charge of the treatment of these patients, it is relevant to achieve their integration into their daily life. Therefore, various studies have shown how patients admitted to prevention and cardiac rehabilitation programs have significant clinical improvement in participation in activities of daily living perceived through the stroke impact scale. This participation, which results in community integration, is the main predictor of the overall recovery of a disabled person.

The *American Heart Association* offers a program that includes cardiovascular training and education to improve cardiovascular risk factors and recommends its use for stroke survivors as part of a program to reduce cardiovascular risk and a new cerebrovascular event.

Different quantitative models have concluded that at least 80% of recurrent vascular events after stroke or initial transient ischemic attack can be prevented through a multifactorial strategy.<sup>10</sup> Thus, cardiac prevention and rehabilitation programs offer an opportunity to reduce cardiovascular risk, mortality and recurrence of stroke and have also shown to improve the perceived quality of life due to provided components of exercise and education.<sup>11</sup>

In high-income countries, the competent health services and strategies for prevention and care of stroke (modification of cardiovascular risk factors, acute stroke units) are the best indicators to reduce the incidence of cerebrovascular events, mortality and DALYs, contrary to what happens in countries with medium and low income as Colombia.

The reduction in prevalence, modification and control of risk factors, and accessibility to health services, including acute care units, rehabilitation and secondary prevention are the factors that make a difference in the burden generated by this disease in the different countries.

There is a worrying trend of increasing incidence of stroke in young adults due to the global increase in diabetes and the increasing prevalence of other cardiovascular risk factors in all population groups, especially in low- and middle-income countries. It is likely that the change in the burden of stroke in younger populations continue all over the world unless preventive strategies be established, among which prevention and cardiac rehabilitation programs cannot be excluded.

Therefore, the current proposal is to consider the model of cardiac rehabilitation as a secondary prevention strategy in stroke care because it has shown a significant positive impact in reducing morbidity and mortality, by achieving one of the most important objectives in the treatment of these patients: the marked improvement in the perception of their quality of life.<sup>12</sup>

This can be achieved by being aware of the existence of this strategy and its implementation. I therefore consider that the key challenge is to create well trained interdisciplinary health teams, able to treat people with physical, communicative, sensory, cognitive disability and cardiovascular involvement.<sup>13</sup>

The cost generated by disability from stroke has implications at different levels; it's not just the economic cost but the emotional, social and family cost; hence our duty to find and make use of the tools available to achieve that people with disabilities may be again incorporated in the best possible conditions to all activities in which they participated before suffering the event.

As we have this intervention in our environment and our patients deserve it, it is necessary that all the professionals of the health team bear in mind the referral of these patients to prevention and cardiac rehabilitation programs as part of their treatment. Let us not leave aside this important opportunity.

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