



Revista Brasileira de Cirurgia  
Cardiovascular/Brazilian Journal of  
Cardiovascular Surgery

ISSN: 0102-7638

revista@sbccv.org.br

Sociedade Brasileira de Cirurgia  
Cardiovascular

Marino Lamari, Neuseli

Effectiveness of a cardiac rehabilitation program during hospital stay

Revista Brasileira de Cirurgia Cardiovascular/Brazilian Journal of Cardiovascular Surgery,

vol. 30, núm. 1, enero-febrero, 2015, pp. VIII-IX

Sociedade Brasileira de Cirurgia Cardiovascular

São José do Rio Preto, Brasil

Available in: <http://www.redalyc.org/articulo.oa?id=398941896004>

- How to cite
- Complete issue
- More information about this article
- Journal's homepage in [redalyc.org](http://redalyc.org)

[redalyc.org](http://redalyc.org)

Scientific Information System

Network of Scientific Journals from Latin America, the Caribbean, Spain and Portugal

Non-profit academic project, developed under the open access initiative

# Effectiveness of a cardiac rehabilitation program during hospital stay

*Efetividade de um programa reabilitação cardíaca durante a fase hospitalar*

Neuseli Marino Lamari, PhD<sup>1</sup>

DOI: 10.5935/1678-9741.20150017

The article “Analysis of steps adapted protocol for cardiac rehabilitation during hospitalization”<sup>[1]</sup> aims to demonstrate the effectiveness of a cardiac rehabilitation program carried out by the physiotherapist during hospitalization in respect to post-operative complications, mortality and length of hospital stay. It stresses that there is a lack of cardiac rehabilitation protocols and is supported by the current literature on the effectiveness of physiotherapy techniques after heart surgery, as well as new strategies centered on multidisciplinary care. All this demonstrates that the article is in tune with proposals of this specialized scientific universe.

It is noteworthy that the treatment of complex cardiovascular diseases has changed significantly with the development of new care strategies, with an ever increasing amount of data based on scientific evidence and criteria on appropriate use at presentation and recommendations to the patient and family<sup>[2]</sup>.

This article adopted a protocol that ensured that the heart surgery team could standardize the care of professionals and document activities in a comprehensive and systematic way, with immediate benefits from the applicability of early mobilization, followed by sitting and assisted or unassisted standing. The progression of the amount of effort exerted followed the Steps program depending on the situation of each patient. This program corresponds to a group of exercises at an intensity and repetition, wherein the energy spent is related to the consumption of oxygen required by the body. However, this protocol is not used in the daily clinical practice, and therefore the morbidity and mortality rates are higher with increased costs to the National Health Service, as was recently reported by the British Cardiovascular Society<sup>[3]</sup>.

I should also stress the importance of this article to heart surgery which is a complex procedure that has important organic implications and causes changes to the physiological mechanism of the patient, resulting in a higher incidence of complications that tend to significantly affect recovery. Hence, rehabilitation, by improving physical functioning, reducing immediate disability, and preventing or minimizing future dysfunction or disability, proposes a multiprofessional approach to recover the biopsychosocial well-being of the patient by a technically autonomous team. With this in mind, early mobilization interventions are necessary to prevent physical and psychological problems, and to avoid the risks involved with prolonged hospitalization and immobility.

READ ARTICLE ON PAGE 40

It seems appropriate to mention that the treatment program for myocardial infarction until 1960 recommended six weeks of bed rest which frequently resulting in postural hypotension and venous thrombosis. In fact, muscle hypertrophy can be identified after only 24 hours of physical inactivity. Hypertrophy is a condition in which the muscle responds to immobilization by reductions in the size of muscle fibers, total weight, in the size and number of mitochondria, in the muscle tension produced, in the adenosine triphosphate (ATP) and glycogen levels during rest, and in the synthesis of protein, all of which contribute to the increase in muscle weakness.

Protected early mobilization with support of body weight avoids the deleterious effects of immobilization and prevents secondary problems caused by immobilization. These effects include weakening of the spine and limb muscles, osteoporosis, cardiovascular deconditioning, and degenerative joint disease, regardless of age or gender.

<sup>1</sup>Faculdade de Medicina de São José do Rio Preto, São José do Rio Preto, SP, Brazil.  
E-mail: neuseli@neuselilamari.com

Thus, the human body moves in order to survive in almost all impaired health conditions and so early physical therapy interventions are imperative. Just standing uses approximately 20% more energy compared to resting and with locomotion or strenuous physical activity, the metabolic rate of muscles can increase 50-100 times above that of resting, with a greater cardiopulmonary response as blood supply increases by approximately 20 times.

Thus, inactivity directly affects muscle strength, resistance to fatigue and physical vigor, with consequent implications to organs and systems.

Considering the aforementioned benefits of early mobilization resulting from physiotherapy techniques in cardiac rehabilitation and the evidence of a multidisciplinary approach of its effectiveness, we ask: Why does the Brazilian National

Health System not standardize this type of protocol in rehabilitation?

#### REFERENCES

1. Winkelmann ER, Dallazen F, Bronzatti ABS, Lorenzoni JCW, Windmöller P. Analysis of steps adapted protocol in cardiac rehabilitation in the hospital phase. *Rev Bras Cir Cardiovasc.* 2015;30(1)40-8.
2. Holmes DR Jr, Rich JB, Zoghbi WA, Mack, MJ. The heart team of cardiovascular care. *J Am Coll Cardiol.* 2013;61(9):903-7.
3. British Cardiovascular Society. From Coronary Care Unit to Acute Cardiac Care Unit – the evolving role of specialist cardiac care [Accessed Feb 18 2015]. Available from: [http://www.bcs.com/documents/BCS\\_Report\\_on\\_Coronary\\_Care\\_Units.pdf](http://www.bcs.com/documents/BCS_Report_on_Coronary_Care_Units.pdf)