Letter to the Editor

Clinical and Economical Outcome of a Cardiopulmonary and Metabolic Rehabilitation Program

To the Editor

We congratulate the authors for the publication of another study, which demonstrates the importance of the cardiopulmonary and metabolic rehabilitation program (CPMR) (Arq Bras Cardiol. 2007;88(3):321-8) in clinical practice. Previous studies have shown a significant morbi-mortality decrease and quality of life improvement in patients who participated in a rehabilitation program[1,2]. However, the cost/effectiveness ratio has not been analyzed in Brazil. We, therefore, stress the importance of performing a prospective study that demonstrates the real economical benefits in the treatment of patients.

The study design evaluated the clinical result, but the reports and medical files of the control group were not used. A prospective study with a control group would allow increased data reliability, describing the actual course of the patients.

The pairing of the groups attained a homogeneous sample regarding the clinical and demographic criteria. However, regarding the cost variable, it presented an elevated standard deviation and additionally, the control group (CG) at the moment of the pre-implementation of the CPMR program showed higher expenses when compared to the treatment group (TG).

The results present significant differences in the plasma lipoprotein profile, in the systemic arterial pressure and in tolerance to physical stress when the CPMR pre-and post-implementation moments were compared. Regarding the economical results, the TG presented a tendency to decrease expenses whereas the CG presented a tendency to increase them. Nevertheless, to our surprise, the data were not statistically significant. Scientific studies carried out in developed countries have shown significant results regarding the economical factor after the implementation of a CPMR program[3]. An alternative to try to demonstrate a significant difference in the present study would be the pairing of the groups in relation to the pre-intervention costs.

The cost/effectiveness ratio is defined as the difference between the costs of two interventions, divided by the difference between their effectiveness, e.g., the years of life saved in a certain population adjusted by the quality of life presented by it[4]. Georgiou et al[5] observed an excellent cost/effectiveness ratio with an increase in life expectancy of 1.82 year at a cost of U$1,773 per life saved. In the present study, the cost of R$ 270.00 established for the expenses with the CPMR program can be considered much more favorable regarding the cost-effectiveness, when compared to other studies. In any case, the present study presents a relevant and very often overlooked issue. It will certainly become a reference for further investigation studies of cost/effectiveness and clinical benefits for the implementation of this type of assistance to the population.

Fábio Cangeri Di Naso
Juliana Saraiva Pereira
Mariane Borba Monteiro
Centro Universitário Metodista – IPA
Porto Alegre, RS
fdinaso@yahoo.com.br

References

1. Garrett NA, Brasure M, Schmitz KH, Schultz MM, Huber MR. Physical inactivity: direct cost to a health plan. Am J Prev Med. 2004; 27 (4): 304-9.
2. Jolliffe JA, Rees K, Taylor RS, Thompson D, Oldridge N, Ebrahim S. Exercise-based rehabilitation for coronary heart disease [Cochrane Review]. Cochrane Database Syst Rev. 2001;1:CD001800.
3. Sociedade Brasileira de Cardiologia. Diretriz de reabilitação cardíaca. Arq Bras Cardiol. 2005; 84 (5): 431-40.
4. Gold MR, Siegel JE, Russell LB, Weinstein MC, eds. Cost-effectiveness in health and medicine. New York: Oxford University Press; 1996.
5. Georgiou D, Chen Y, Appadoo S, Belardinelli R, Greene R. Cost-effectiveness analysis at long-term moderate exercise training in chronic heart failure. Am J Cardiol. 2001; 87: 984-8.

THE AUTHORS REPLY

To the Editor

First of all, I would like to thank the attention given by the author of the letter to the article "Clinical and Economical Results of a Cardiopulmonary and Metabolic Rehabilitation Program" (Arq Bras Cardiol. 2007; 88(3): 321-8), of which I am one of the authors.

It is true that, in our country, studies on the cost/effectiveness of cardiopulmonary and metabolic rehabilitation program (CPMR) have not been carried out, which our observational study could not contemplate. In order to do so, it would have been necessary to randomly establish the CPMR and control groups. The studies that determine the cost/effectiveness of a treatment require the development of a controlled and randomized clinical assay, which allows determining the clinical benefit in the intervention group through the comparison with the control group and, subsequently, establishing the economical cost of the benefit. Namely, for instance, the investment that the studied therapeutic modality requires to improve the quality of life or prevent the death of a patient/year is established.

Our study was carried out with the objective of documenting an accomplished fact: a CPMR program, designed by a health insurance company, aiming at decreasing the costs caused by their higher-risk clients. The study showed only the clinical data of the CPMR group, obtained from the files of the rehabilitation program, as we did not have access to similar data of patients

from an eventual control group. Therefore, the comparison between groups was carried out regarding the costs that the patients required from the health insurance company only, which is something we could also obtain concerning a control group from the database of Unimed Litoral-SC.

I understand the statement in the sentence "a prospective study with a control group would allow increased data reliability, describing the actual course of the patients". I would like to make a small correction, however, as the "data reliability" would not be different, but the data assessment would and, naturally, the conclusions obtained from such assessment. Nevertheless, I would like to stress that the study developed by our group, despite its limitations, was the viable one, using the data obtained from pre-existing databases.

The pairing of the groups was carried out regarding the clinical and demographic criteria, which explains the fact that the groups were homogenous considering these characteristics. However, the groups were compared regarding the economical aspect only, in relation to which there was no pairing. The questions raised by the author of the letter, when he affirms that "regarding the cost variable, it presented an elevated standard deviation and additionally, the control group (CG) at the moment of the pre-implementation of the CPMR program showed higher expenses when compared to the treatment group (TG)", are therefore, purely accidental.

The evolution of the CPMR patients allowed, according to the letter to the editor, verifying that "the results showed significant differences in the plasma lipoprotein profile, in the systemic arterial pressure and in tolerance to physical stress when the CPMR pre-and post-implementation moments were compared." These data demonstrate the clinical benefits obtained by the patients studied.

The fact that the difference caused by the decrease in the expenses of the CPMR group and the increase in the expenses of the control group was not statistically significant can be explained by several factors, such as the small sample size and the sample heterogeneity. Most of the study participants did not present severe cardiovascular disease, such as heart failure or atherosclerotic coronary disease, but only elevated risk score. The international studies cited were carried out in homogenous populations that presented heart failure[1] and atherosclerotic coronary disease[2,3].

I agree that it is noteworthy the low value established for the expenses of the patients that participated in the CPMR program, which, in our country, could be even more interesting from an economical point of view. I generally agree with the affirmation that "…the present study presents a relevant and very often overlooked issue. It will certainly become a reference for further investigation studies of cost/effectiveness and clinical benefits for the implementation of this type of assistance to the population." However, considering the strength of the studies on the results of CPMR in terms of cost/effectiveness, I believe it is not necessary to wait for new publications in order to provide this therapeutic modality to the Brazilian population. Undoubtedly, the CPMR must be one of the priorities, in terms of investment, when one thinks about Health Policies in the public and private health sectors, as recommended by the directive "Cardiopulmonary and Metabolic Rehabilitation: Practical Aspects and Responsibilities"[4].

Tales de Carvalho
Programa de Mestrado em Ciências do Movimento Humano - UDESC
Florianópolis, SC
tales@cardiol.br

References

1. Georgiou D, Chen Y, Appadoo S, Belardinelli R, Greene R. Cost-effectiveness analysis at long-term moderate exercise training in chronic heart failure. Am J Cardiol. 2001; 87: 984-8.
2. Jolliffe JA, Rees K, Taylor RS, Thompson D, Oldridge N, Ebrahim S. Exercise-based rehabilitation for coronary heart disease [Cochrane Review]. Cochrane Database Syst Rev. 2001;1:CD001800.
3. Taylor RS, Brown A, Ebrahim S, Jolliffe J, Noorani H, Rees K, et al. Exercise-based rehabilitation for patients with coronary heart disease: systematic review and meta-analysis of randomized controlled trials. Am J Med. 2004; 116 (10): 682-92.
4. Sociedade Brasileira de Cardiologia. Diretriz de reabilitação cardiopulmonar e metabólica: aspectos práticos e responsabilidades. Arq Bras Cardiol. 2006; 86 (1): 74-82.