

Editorial

Disease Management Programs in Heart Failure: One Step Beyond Pharmacology

Programas de manejo en la insuficiencia cardiaca: un paso más allá de la farmacología

Daniel Ferrante

Fundación GESICA, Buenos Aires, Argentina

ARTICLE INFO

Article history:

Available online 15 March 2011

Despite pharmacological advances, both mortality and the incidence of hospital admissions are high for heart failure.¹ As with many other chronic diseases, the findings of clinical trials are difficult to implement due to lack of adherence to treatment,² frequent comorbidities not considered in clinical trials, and health systems' typical focus on acute diseases. Public health systems usually pay less attention to ongoing monitoring and the therapeutic measures necessary for chronic diseases. Unlike acute diseases, chronic conditions require adherence to medication, non-pharmacologic approaches such as diet, and prolonged follow-up at different levels of the health services.³

Since the mid-nineties, various initiatives such as that of Rich et al.⁴ began to show promising results in reducing admissions for decompensated heart failure via heart failure management programs. Other publications have also reported reduced costs and improved quality of life. Various strategies framed in what might be called chronic disease management were used, such as heart failure consultations, home visits, scheduled discharge programs, telephone follow-ups and monitoring systems.⁵

A recently published clinical trial that used only telemonitoring did not show favorable results. However, in this study physiological variables were monitored and there was very low adherence to monitoring during the follow-up.⁶ Other studies have had greater adherence to the originally scheduled strategy, such as the DIAL study which, using a more comprehensive strategy by telephone, managed to reduce heart failure admissions by 30%,⁷ with a long-term effect after the end of the intervention.⁸

In the article published in *Revista Española de Cardiología* (official publication of the Spanish Society of Cardiology), Domingo et al.⁹ describe the results of a telemonitoring system. Evaluating patients before and after treatment was effective in reducing hospitalizations for heart failure and cardiovascular problems. Admissions for heart failure decreased by 67%, and the quality of life assessed by the Minnesota questionnaire showed significant improvement after a 1-year follow-up. Most patients accepted the telemonitoring, although 22% were not actually receiving this intervention (the monitoring) at the end of follow-up. Adherence to daily self-monitoring was low (<50%). There was no evidence of an increase in any benefit provided by additional self-monitoring for blood

pressure, heart rate, and weight during the telemonitoring (based on motivational and educational messages, and the sending of questionnaires). Overall benefit was achieved despite the fact that participants in the study were already receiving optimized treatment and were being monitored by a heart failure unit.

This study has a number of limitations: a small number of patients, the "before and after" design, and the failure to adjust the intensity of the intervention to severity and adherence. However, its findings are consistent with most of the available evidence. Nevertheless, it is difficult to generalize about complex interventions, such as chronic disease management, as it is very difficult to determine which of the components will be more effective, or which are responsible for most of the improvement.

This study shows that telemonitoring was feasible and added benefit to patients in optimal treatment, ie, the majority of the patients. However, several less complex interventions that act on the determinants of the evolution of chronic diseases - such as clinical practice support, evaluation information systems, and decision and self-care support - have proved to be effective, regardless of the implementation format (telephone, outpatient visits or other strategies). Heart failure management programs can be effective in various formats, with varying degrees of complexity. Complex and costly interventions have shown equal or less efficacy than simpler interventions. The key to the effectiveness of any intervention may lie in the action on the main factors of chronic disease, regardless of its complexity.

The study of Domingo et al. published in this issue reports that it is not possible to estimate the effect of the proposed telemonitoring with the same force of evidence as a randomized study, as the main evaluation was the before-after analysis, and all patients received the main intervention. However, the results are consistent with the evidence available so far. Despite the several systematic reviews available, these must be interpreted with caution, given the clinical heterogeneity inherent in such different interventions. A recent systematic review included 20 randomized trials of remote monitoring systems, which showed a 30% reduction in heart failure admissions.¹⁰ Studies using similar telemonitoring strategies, such as Cleland et al.,¹¹ showed a similar benefit from telemonitoring compared with telephone follow-up. Although the Domingo et al. study and the recent Chaudhury et al.⁶ study suggest that self-monitoring provides no added value, extended follow-up in the DIAL study, although by telephone, showed that adherence to weight self-monitoring was predictive of better evolution.⁸ However, the current Domingo et al. study

SEE RELATED ARTICLE:

DOI: 10.1016/j.rec.2010.10.032, Rev Esp Cardiol. 2011;64:277–85

Corresponding author: Fundación GESICA, Avda. Rivadavia 2358, 1.º piso 4, 1034 Ciudad Autónoma de Buenos Aires, Argentina.

E-mail address: dferrante@fundaciongesica.org

reported no added benefit for self-monitoring, probably due to the low adherence or absence of a specific intervention on adherence.

In conclusion, despite being a small study, this experience shows that it is feasible to implement heart failure programs using telemonitoring. It shows an additive effect to the optimized care of heart failure, despite failing to clarify the relative value of each type of intervention and the increased value of self-monitoring over telemonitoring. Considering the evidence available, several interventions that act on the most important factors of chronic disease can have beneficial effects in heart failure, even if administered in various forms. Several questions remain, however. For example, how does the adjustment of the type and intensity of these interventions affect each group of patients, or which strategy might be more cost-effective? However, the fact that such different interventions provide benefits, even over the best possible medical treatment, should lead us towards making outpatient chronic heart failure programs more widely available.

CONFLICTS OF INTEREST

None declared.

REFERENCES

- Heidenreich PA, Sahay A, Kapoor JR, Pham MX, Massie B. Divergent trends in survival and readmission following a hospitalization for heart failure in the Veterans Affairs health care system 2002 to 2006. *J Am Coll Cardiol*. 2010;56:362–8.
- Vinson JM, Rich MW, Sperry JC, Shah AS, McNamara T. Early readmission of elderly patients with congestive heart failure. *J Am Geriatr Soc*. 1990; 38:1290–5.
- Wagner E. Care of older people with chronic illness. In: Boulton C, Wagner EH, Pacala JT, editors. *New ways to care for older people: building systems based on evidence*. New York: Springer; 1999. p. 39–64.
- Rich MW, Beckham V, Wittenberg C, Leven CL, Freedland KE, Carney RM. A multidisciplinary intervention to prevent the readmission of elderly patients with congestive heart failure. *N Engl J Med*. 1995;333:1190–5.
- Clark R, Inglis S, McAlister F, Cleland J, Stewart S. Telemonitoring or structured telephone support programmes for patients with chronic heart failure: systematic review and meta-analysis. *BMJ*. 2007;334:942–51.
- Chaudhry SI, Matterna JA, Curtis JP, Spertus JA, Herrin J, Lin Z, et al. Telemonitoring in patients with heart failure. *N Engl J Med*. 2010;363:2301–9.
- GESICA Investigators. Randomised trial of telephone intervention in chronic heart failure: DIAL trial. *BMJ*. 2005;331:425.
- Ferrante D, Varini S, Macchia A, Soifer S, Badra R, Nul D, et al.; GESICA Investigators. Long-term results after a telephone intervention in chronic heart failure: DIAL (Randomized Trial of Phone Intervention in Chronic Heart Failure) follow-up. *J Am Coll Cardiol*. 2010;56:372–8.
- Domingo M, Lupón J, González B, Crespo E, López R, Ramos A, et al. Telemonitorización no invasiva en pacientes ambulatorios con insuficiencia cardíaca: efecto en el número de hospitalizaciones, días de ingreso y calidad de vida. Estudio CARME (CAtalan Remote Management Evaluation). *Rev Esp Cardiol*. 2011;64:277–85.
- Klersy C, De Silvestri A, Gabutti G, Regoli F, Auricchio A. A meta-analysis of remote monitoring of heart failure patients. *J Am Coll Cardiol*. 2009;54: 1683–94.
- Cleland J, Louis A, Rugby A, Janssens U, Balk A, on behalf of the TEN-HMS Investigators. Noninvasive home telemonitoring for patients with heart failure at high risk of recurrent admission and death. The Trans-European Network-Home-Care Management System (TEN-HMS) Study. *J Am Coll Cardiol*. 2005; 45:654–64.