

# Heart Failure Management Programs: In Favour of Universal Implementation

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The creation of care programs for patients with heart failure is reflected in the most recent update of the guidelines for the treatment of chronic heart failure of the European Society of Cardiology, with a class I recommendation and level A evidence for the reduction of hospitalization and a class IIa recommendation and level B evidence for reduction of mortality.<sup>1</sup> The sophistication and complexity of treatment of patients with heart failure requires an ever increasing amount of knowledge of this syndrome and its treatment. Creation of specialist care systems has allowed better and more comprehensive care of patients with heart failure and has yielded significant benefits in the course of the disease, as shown in various meta-analyses.<sup>2-5</sup> These meta-analyses have highlighted the large differences that exist between different studies in all areas, thus justifying the disparate results obtained. These differences essentially center on the severity of the disease in the patients enrolled, the length of the follow-up and the intervention, the intensity of the intervention and where it is performed, and also the rate of use of different treatments, particularly  $\beta$ -blockers. Nevertheless, taken together, the benefit in terms of the reduction in hospital admissions can be said to be clearly demonstrated and the reduction in mortality also appears to be an achievable goal. In fact, in one of the most recently published meta-analyses, based on 36 randomized trials in 13 different countries and with a total of 8341 patients, it was concluded that the reduction in mortality reached 3% in absolute terms with these types of interventions, corresponding to number needed to treat (NNT) of 33 to save 1 life.<sup>5</sup> In the same study there was an absolute reduction of 8% in first hospital admission for any cause, corresponding to an NNT of 13, and an absolute reduction of 19% in subsequent repeat admissions, corresponding to an NNT of 5. A reduction in hospital admissions<sup>6-9</sup> and an improvement in survival<sup>6,7</sup>

have also been observed in Spain, and little by little, heart failure care programs are becoming more common along with the appearance of specific heart failure units in Spanish hospitals. Heart failure units are currently located mainly in tertiary-level hospitals,<sup>10</sup> and in those units, as reported in the literature worldwide, very different care programs are developed for patients with heart failure. This disparity probably affects all of the organizational and functional aspects of the units, ranging from the personnel involved to the type of patients treated, the length of follow-up, the setting in which the intervention is initiated, the type of intervention, the relationship established with other care settings, and the continuity of what we could refer to as the care program itself, etc. Nevertheless, it is generally accepted that the involvement of specialist nurses and cardiologists is essential for the development of this type of unit, without undervaluing in any way the contribution of other physicians or professionals. In the rest of Europe, most nurses who participate in heart failure care programs have extensive experience in cardiology and have attended courses on heart failure (52% in universities and 56% in other settings).<sup>11</sup> In Spain, however, there is no subspecialization or specific training for nurses to work with this disease. We do not know to what extent the degree of specialization of nurses and doctors could also influence the results obtained.

The different care models range from a single educational session prior to discharge or a single educational home visit by a specialized nurse, or periodic telephone follow-up, to a multidisciplinary intervention centralized in a physical unit. There is overlap between the different care models, such that some could be described as mixed. We should differentiate between the very general term "care program" and isolated or very short interventions; while the latter should form part of a heart failure care program, they should not be considered a care program in and of themselves. Nevertheless, it is clear that some of these interventions, particularly those of an educational nature, have obtained very positive results. For instance, the studies of Stewart et al<sup>12</sup> and Koelling et al<sup>13</sup> internationally, and that of Morcillo et al<sup>9</sup> in Spain can be considered clear examples. Stewart et al<sup>12</sup> used a home-based intervention in Australia that involved a single home visit by a nurse and a pharmacist. The aim of the visit was to show the patient how to comply

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with the medication, identify clinical deterioration early, and intensify ambulatory follow-up by the family doctor. That program achieved a reduction in readmissions and hospital stay ( $P=.03$ ) at 6 months. Koelling et al<sup>13</sup> showed that a single educational session lasting an hour and imparted by nurses prior to hospital discharge reduced the risk of death or rehospitalization by 35% ( $P=.018$ ) at 6-month follow-up. It is noteworthy in that study that the group of patients who received an educational session improved their level of self-care (weighing, low-salt diet, stopping smoking). Furthermore, although the differences were not significant due to the limited number of patients in the subgroup, the authors noted a trend towards a greater benefit in patients in whom follow-up was not subsequently performed in specialist units. In Spain, Morcillo et al<sup>9</sup> showed that an educational intervention based on a single home visit by a nurse a week after hospital discharge led to a large reduction (90%) in the number of admissions ( $P<.001$ ) and visits to the emergency department (84%,  $P<.001$ ), accompanied by a reduction in associated costs. While a reduction in mortality was also observed ( $P<.001$ ), this analysis did not form part of the original study design and only a small number of patients were studied.

The explanation for these good results would be that the main cause of cardiac decompensation is poor treatment compliance and failure to recognize the signs of incipient decompensation, and consequently, education of patients and their families could play an important role in prevention. The main aim of education is to increase patient awareness and in that way help patients to play an active role in their own care, to understand the need to comply with dietary restrictions and treatment, and to recognize signs and symptoms of decompensation. Thus, interventions centered on health education and early detection of decompensation have reduced in particular hospital admissions and have improved the quality of life of patients and their satisfaction with the care they receive.

In this issue of *Revista Española de Cardiología*, Aldamiz-Echevarría et al<sup>14</sup> report the results of a short intervention of essentially educational nature undertaken during the first 2 weeks following hospital discharge after admission for heart failure. The intervention was carried out by staff who were not specialized in the condition, such as members of the home care unit, and unlike the studies mentioned, it achieved only a slight reduction in the combined outcome measure of death and hospital admission at 6-month and 12-month follow-up, with differences that were not statistically significant. Notably, the intervention did not succeed in reducing repeat admissions for heart failure.

It is somewhat difficult to understand how such short interventions as those described could achieve such good results in the medium and long term, although it is clear from the literature that these benefits can indeed be obtained. It is easier to understand that the most immediate

readmissions (in the first 3 months), which can correspond to approximately 30% of patients, are reduced by interventions prior to discharge or in the transition to subsequent clinical follow-up. Consequently, the results of Aldamiz-Echevarría et al<sup>14</sup> at 6 and 12 months can easily be accepted. We have always believed that more integrated interventions that combine education with medical and pharmacological interventions should undoubtedly achieve better results. From our point of view, while education is extremely important, it is not the only relevant factor and optimization of treatment is also fundamental to obtaining favorable clinical outcomes in the medium and long term. In order to obtain this optimization, follow-up must involve close but continuous monitoring of the patients. Consequently, short interventions cannot fulfill this objective if they are not followed by another type of intervention or a more comprehensive care program. In fact, these 2 elements may have had a marked effect on the study of Aldamiz-Echevarría et al.<sup>14</sup> Both are mentioned in the section referring to the limitations of the study, but that does not prevent them from being crucial. As mentioned, one aspect is the length of the intervention. Day to day experience with our own patients tells us that education requires greater continuity. Even after a year-long educational intervention provided by nurses it is difficult to improve some aspects of patients' self-care, although the level of awareness does improve with the intervention.<sup>15</sup> Another notable aspect is the overall care of the patient, specifically that relating to treatment. The design of the intervention was such that little optimization of drug treatment could be performed. The study did not mention the treatment used in the patients over the course of the year, nor whether follow-up was similar in both groups. It is not known what percentage of patients received appropriate treatment, not at the beginning but rather during follow-up ( $\beta$ -blockers, angiotensin-converting enzyme inhibitors, dose, etc), a factor that could have a marked effect on the course of their disease. It was also not mentioned whether some patients were monitored by cardiologists and others by primary care physicians or if follow-up was exclusively in primary care.

It is very difficult to know which elements of "specialist" care are determining factors in reducing hospital admissions. The true role of each element of the interventions undertaken in this specialist care is not well established. The COACH study<sup>16</sup> will attempt to clarify this aspect, although it would appear difficult to extend the results to different countries, hospital, and local circumstances. According to a review by Jaarsma et al,<sup>11</sup> most programs in Europe include physical examination, telephone consultations, optimization of drug treatment, patient education, and diagnostic tests. Various meta-analyses indicate that the most comprehensive programs, which include a care plan prior to discharge and a postdischarge follow-up, obtain better results than

programs in which the intervention is restricted to the period following hospital discharge,<sup>2</sup> and that a comprehensive multidisciplinary strategy reduces patient mortality.<sup>3</sup> Gohler et al<sup>5</sup> analyzed some of these factors and concluded that the efficacy of the different programs improves with increases in the number of professionals involved, such that multidisciplinary teams are more effective in addressing the complex transitional needs of these patients. They also concluded that direct, face-to-face interventions, both in hospital and at home, are more effective than telephone contact. Finally, it should not be forgotten that the characteristics of the patients themselves (age, functional class, etiology) can influence the results obtained. Thus, for instance, the benefits in terms of mortality are reduced by advanced age of the patients, while the reduction in hospital admissions is more apparent in patients with worse functional class.<sup>5</sup> Even in some studies based solely on an educational intervention, it is reported that the result of the intervention could be influenced by the subsequent follow-up of the patients,<sup>13</sup> such that patients seen in a specialized heart failure unit receive less benefit from an educational intervention prior to hospital discharge than those in whom follow-up is carried out by primary care physicians or general cardiologists. It is notable that the study by Aldamiz-Echevarría et al<sup>14</sup> only included 2 patients from the cardiology department. Perhaps the patients from that department are subsequently monitored in a specialist unit and were not considered eligible for a transitional intervention. This would be consistent with a population that is in principle more sensitive to the intervention, according to the study by Koelling et al.<sup>13</sup>

However, in order to assess the results of Aldamiz-Echevarría et al<sup>14</sup> in depth it is necessary to take into account many factors and it is possible that we might not extract definitive conclusions. As mentioned by the authors themselves, the patients included in the study were of advanced age, had a lower level of education than in other reported patient series, and perhaps had a better prognosis than in other studies, considering the ejection fraction and the low percentage of patients with ischemic heart disease, as well as the fact that less than half the patients had been admitted previously for heart failure. Furthermore, it should be noted that 26% of deaths and 35% of admissions were not for cardiovascular causes, and only 46% of repeat admissions were due to heart failure. Apparently, these other causes of death and hospital admission are not influenced by interventions aimed at heart failure and may have diluted the beneficial effect of the intervention. Unfortunately, the number of admissions for heart failure was also not reduced by the intervention addressed in the study, although some of the factors mentioned (treatment, subsequent follow-up) were not discussed in the article, and therefore, we cannot clearly determine the reason for the lack of significant benefit with the intervention.

It is interesting to note that the intervention used in the study by Aldamiz-Echevarría et al<sup>14</sup> was useful in a specific group of patients, namely those in whom treatment compliance was poor. Although there were too few patients to draw major conclusions and the results were based on posthoc analysis, it could be possible to establish a working hypothesis that, if it were to be confirmed, would allow better selection of those patients in whom this specific type of intervention should be used. However, there are some gaps in this regard that were also acknowledged as limitations. No tools were used to assess the direct effect of the educational efforts on the parameters of education and self-care to which the intervention was theoretically directed: compliance, monitoring of weight and blood pressure, recognizing signs of decompensation, etc. In order to determine whether the educational intervention influenced the progress of the patients it is necessary to know whether it altered the elements addressed. For instance, in the group of “noncompliant” patients, it is unknown whether compliance was really increased or whether it increased less in those patients who were already compliant.

Much has been discussed about the need to carefully select those patients who should be included in specialist care programs. It seems clear from the point of view of immediate effectiveness that appropriate selection of the most severe patients helps to obtain better and more rapid results. In fact, some interventions aimed at patients at lower risk have not yielded significant benefits.<sup>17</sup> However, in our opinion, all patients with heart failure deserve to be included in some type of specialized heart failure care program. Furthermore, the intensity of the intervention and where it takes place should vary according to the patient characteristics. We share the opinion of other authors<sup>18</sup> that the availability of care programs should be extended to less advanced stages of the disease and to patients with less severe disease. Care of patients with heart failure should be organized in the different health care settings, always ensuring that the care offered in each setting is easily accessed and includes education and optimization of both pharmacological and non pharmacological therapy. Irrespective of the complexity of the organizational structure, it is important that the professionals involved in the care of patients with heart failure are readily accessible. It is helpful to remember that simple telephone contact with a physician or specialist nurse or a “priority” appointment in the unit or primary care center, or alternatively at home, can sometimes avoid the need for patients to visit emergency services, which are often overwhelmed, or even avoid the need for hospital admission. This easier access offers the opportunity to change or adjust treatment sooner in the early stages of decompensation and in this way obtain improvement of the clinical situation before the patient needs to be admitted to hospital.

Finally, it was concluded in the study by Aldamiz-Echevarría et al<sup>14</sup> that since the type of unit that administered the program is usual in Spanish hospitals,

the program—or the intervention—could be easily transferable to other hospitals. Since the results were probably not those that were hoped for, perhaps it would be better not to extend the use of this type of intervention until it has been determined in which type of patients it should be used and until a more comprehensive subsequent care program has been established to guarantee optimization of the therapeutic options, pharmacological or otherwise, and to offer ongoing reinforcement of the initial educational intervention. Nevertheless, the authors should be congratulated on the initiative to offer patients with heart failure a continuum of care following a period of hospital admission and for publishing their results despite their not being positive. It is likely that patients with heart failure will benefit from similar initiatives when they are accompanied by a more comprehensive and ongoing treatment or care program.

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