**Narrative review articles**

# Palliative care and its impact on the quality of life in heart failure patients

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**Cuidados paliativos y su influencia en la calidad de vida de pacientes con insuficiencia cardíaca**

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**Abstract**

Congestive heart failure is an important part of global morbidity and mortality. These patients lose quality of life considerably, particularly due to the unpredictable path of the disease. Palliative care represents an opportunity to improve symptom control and prevent hospital readmissions, especially in the advanced stages of the disease (New York Heart Association III-IV). The objective of this revision is to determine the influence of palliative care on the quality of life of patients with heart failure in advanced disease, since it has been shown that they suffer multiple hospitalizations in the last year of life. In general, patients with this failure receive less palliative care than oncology patients, and when they receive it, they do so with less functionality ($p < 0,001$). Implementing palliative care increases quality of life ($p = 0,03$) decreases depression ($p = 0,02$), anxiety ($p = 0,048$) the frequency of hospital readmissions compared to usual management, 33,63 % vs. 61 %, emergency visits, 35,0 % vs. 60,0 %. Multiple evidences indicate that mortality is not influenced ($p > 0,19$, $p > 0,22$). According to the corresponding medical bibliography, it is concluded that palliative care must be implemented from the diagnosis of this pathology, since it offers a better quality of life, especially in advanced disease.

**Keywords**
Palliative Care, Heart Failure, Quality of Life, Patient Readmission.

**Resumen**

La insuficiencia cardíaca congestiva es parte importante de la morbimortalidad mundial. Estos pacientes pierden calidad de vida de manera considerable, particularmente por su trayecto impredecible. Los cuidados paliativos representan una oportunidad para mejorar el control sintomático y prevenir reingresos hospitalarios, especialmente en las fases avanzadas de la enfermedad (New York Heart Association III-IV). El objetivo de esta revisión es determinar la influencia de los cuidados paliativos en la calidad de vida de los pacientes con insuficiencia cardíaca en enfermedad avanzada. Debido a que sufren múltiples hospitalizaciones en el último año de vida. En general, reciben menos cuidados paliativos que los pacientes oncológicos, y al recibirlos lo hacen presentando una menor funcionalidad ($p < 0,001$). Al implementar los cuidados paliativos aumenta la calidad de vida ($p = 0,03$), reduce la depresión ($p = 0,02$), la ansiedad ($p = 0,048$), la frecuencia de reingresos hospitalarios en comparación con el manejo usual, 33,63 % vs. 61 %, y visitas a emergencias, 35,0 % vs. 60,0 %. Múltiples evidencias señalan que la mortalidad no es influenciada ($p > 0,19$, $p > 0,22$). Según la bibliografía, se concluye que los cuidados paliativos deben ser implementados desde el diagnóstico de esta patología, puesto que ofrecen una mayor calidad de vida, especialmente en enfermedad avanzada.

**Palabras clave**
Cuidados paliativos, insuficiencia cardíaca, calidad de vida, readmisión del paciente.

# Introduction

Congestive heart failure (CHF) represents a significant part of the world's mortality and morbidity and a high burden on health systems. On a global scale, 64 million people have received this diagnosis in 2020[1]. In the United States (USA), 6,2 million people live with this disease[2], 12–15 million consultations and 6,5 million hospitalizations are performed annually, whose costs by 2030 will amount to $1044 billion[3]. In El Salvador, 25 000 people died from CHF (2015)[4]. The prevalence in > 70 years is 10 %[5], 40 % die in the 12 months after the first admission and 84 % will be admitted one or more times in their last year of life[6]. It is the leading cause of hospitalization in > 65 years[7].

The main symptoms are dyspnea, fatigue, edema, which decrease functionality and quality of life (QoL), 5–10 % present them at rest[8], are multifactorial and can be triggered by depression and anxiety, particularly in advanced disease[9] (NYHA category III-IV)[10]. Unfortunately, current treatments are mainly focused on reducing hospitalizations and mortality, but not on improving the state of health or recovering the functionality of the patient[11].

Palliative care (PC) addresses the improvement of QoL in the face of incurable and progressive diseases[12]. Including them in the management of CHF decreases depression, anxiety and hospital readmissions and helps control symptoms[13,14]. These patients suffer a loss of CV comparable to oncological pathologies[15], but do not usually receive palliative care due to poor predictability and difficult prognosis[16].

The European Palliative Care Association (EAPC) suggests CP to all patients even without an established prognosis[17].

A narrative review article was prepared through a systematized search in the PubMed, Google Scholar and SciELO databases. The selected literature includes original articles, randomized studies, clinical trials and review articles in Spanish and English, and which have been published in the last 5 years. The terms were "Congestive heart failure AND palliative care", "quality of life OR dyspnea", "mortality".

The objective of this narrative review article is to determine the influence of PCs on the QOL of patients with CHF in advanced disease.

# Discussion

## Application of palliative care in patients with congestive heart failure

The heart is unable to maintain adequate systemic perfusion in CHF, resulting in fluid accumulation. Its main etiologies are acute coronary syndrome, chronic arterial hypertension and arrhythmias. The clinical picture includes the cardinal symptoms of dyspnea, fatigue, edema, pain and decreased functionality, usually accompanied and triggered by anxiety and depression, which frequency increase as the patient approaches death[18].

Conventional management is insufficient because hospital readmissions in the 30 days post-discharge are 20-50 %[19,20], in-hospital mortality for > 75 years is from 10 to 12 %[21], and mortality in the 30 days post-discharge is 12 %[22], suggesting little or no improvement in patient health and a decrease in QOL.

The EAPC suggests including PC in the management of CHF to prevent hospital readmissions and improve symptomatic control in order to increase QOL because 68 % of patients would prefer better symptom control over longer life[23]. There is no consensus about the start of PC in CHF; however, the European Society of Cardiology (ESC) suggests evaluating PC in the face of frequent hospitalizations or exacerbations in the last year as well as in cases of progressive decrease in QOL. On the other hand, the EAPC considers PC appropriate from the diagnosis[24]. A significant sample of patients is not eligible or therapeutic options are rejected so PC is the main option for treatment[25].

Nowadays, the main diagnosis that receives palliative care in the U.S. is cancer with 32 %, and the second one is the CHF, which represents 13,2 %, according to Palliative Care Quality Network (PCQN)[26]; patients with CHF are mainly referred by general medicine or cardiology[27]. A retrospective study by Gadoud *et al.* revealed that 24 % of patients deceased by CHF have received PC, compared to 61 % of cancer patients[28]. When patients are referred to PC, 28 % of them with CHF have a Palliative Performance Score (PPS) from 0 to 30 % compared to one in ten of cancer patients[28]. This demonstrates how a higher proportion of patients with this heart disease are totally and completely dependent on caregivers.

Liu *et al.* found that when patients are referred, the average of PPS for CHF patients is 35.6 %, versus 42,4 % (p <0,001) of cancer patients. Patients with CHF have a lower probability to receive palliative care in the first 24 hours of hospitalization compared to cancer patients, 41,2 % and 49 % and longer hospitalizations before being referred, 4,6 days and 3,9 days, respectively[7]. The trajectory of this disease is characterized by unpredictable exacerbations, which are progressively aggravated with a partial recovery[13,22], which becomes an uncertain prognosis for these patients. Consequently, Warriach et al. pointed that life expectancy in patients is overestimated[29], making reference to PC difficult.

PC teams are based on seven domains: ethical, cultural, transition to hospice, spiritual, social, psychological and physical, to ensure that care is good-quality and comprehensive (the physical domain includes the symptoms, giving it preponderance)[30]. It must be started with primary PC, which consists of relief of pain and other symptoms, evaluation and reduction of emotional distress and pain burden, and improvement in QOL. These must be provided by a multidisciplinary team in accordance with the objectives set by the patients and their families[31].

Upon reaching PC, the severe moderate symptoms presented by cardiac patients are loss of well-being, 52 % fatigue, 35 % anorexia, 35 % and dyspnea 27 %[28]. They report more severe dyspnea than cancer patients, 15,2 % and 10 % respectively, and a particular benefit with PC[7]. For this purpose, there are multiple therapies: oxygen administration, diuretics, vasodilators, ambulatory inotropes, opiates, when dyspnoea is persistent, and a thoracocentesis is performed before significant pleural effusions. Diuretics are used at high or combined doses in systemic congestion. They can be intravenous in refractoriness[32].

Zahid et al. awarded special relevance to subjective experiences since psychological symptoms such as depression influence and worsen patient morbidity, causing hospitalizations[33]; 50-60 % of patients with CHF NYHA III-IV report depression and 45 % anxiety. Depression is more common in CHF than in cancer and its management consists of antidepressants such as paroxetine, sertraline, escitalopram, citalopram; psychotherapy and exercise are also useful, including martial arts[34].

Refractory lower limb edema can be managed with compressive therapy, postural changes, ambulation, physiotherapy, limb elevation and the use of compression stockings[35]. Pain is frequent and can be treated with conventional antianginal therapies as well as opioids. Pain cannot be managed with nonsteroidal anti-inflammatory drugs (NSAIDs) in CHF because renal function is undermined, resulting in greater fluid retention[36].

## Influence of palliative care on hospital readmissions and symptomatic control in patients with congestive heart failure

QOL of CHF patients is decreased due to the copious use of health services, and worsens when the date of death is near the patient. The patient dies ± 2,4 years after the first hospitalization, 30 % of them in the year after a hospitalization. 20 % are readmitted 30 days after discharge and 50 % one year after discharge due to cardiovascular causes[37].

The PAL-HF randomized clinical trial by Rogers *et al.* evaluated how many of these aspects are influenced by PC. A total of 150 NYHA III-IV patients with one or more CHF hospitalizations in the 12 months prior to study initiation were selected. 50 % of them were given palliative care for six months with usual management. Subsequently, QOL was evaluated with the Kansas City Cardiomyopathy Questionnaire (KCCQ), the FACIT-PAL questionnaire, FACIT-Sp for spiritual well-being and Hospital Anxiety and Depression Score (HADS)[38].

There was a higher score in the intervened group in the KCCQ (from 36,1 to 63,1 points) than in the control group (from 31,4 to 52,1 points), which shows an increase in QOL (p = 0,03). The group that was intervened in FACITL-Pal experienced an improvement in QOL (from 120,6 to 136,5 points) compared to those who did not receive PC (from 118 to 125,8 points); (p = 0,035). Results for depression (p = 0,02) and anxiety ( p = 0,048 ) in HADS and those in FACIT-Sp ( p = 0,027 ), were comparable to each other. However, there was not change in hospital readmissions in any group: 30,7 % and 29,3 % respectively[39].

A randomized controlled trial by Wong *et al.* suggests an improvement in readmissions. Half of 84 NYHA IIIIV CHF patients with ≥ 3 admissions in the 12 months prior to the initiation of the investigation were referred to PC during index admission and received follow-up visit for one year. The group which received PC had a greater decrease in readmissions at 4 weeks after hospitalization than the conventionally managed group, 20,9 % vs. 29,3 %, and also at 12 weeks, 33,6 % vs. 61 %, respectively[39].

Using the Edmonton Sympton Assessment Scale (ESAS), 4 weeks after index hospitalization, the PC group demonstrated a more marked improvement than the control group in depression, 45,9 % vs. 16,1 % anxiety, 43,2 % vs. 22,6 % and dyspnea, 62,2 % vs. 29 %. Functional status was assessed with PPS, with no difference between groups. QOL was benefited from both instruments used: the McGill Quality of Life Questionnaire-Hong Kong (MQOL-HK) ($p < 0,05$) and the Chronic Heart Failure Questionnaire-Chinese (CHQ) ($p < 0,01$), the latter being specific to CHF[40].

O'Riordan *et al.*, in their randomized controlled trial with 30 patients with NYHA II-IV CHF, performed a PC intervention in an outpatient setting for 6 months, obtaining different results. It was found improvement when using ESAS and HADS but was not a relevant difference in terms of depression ($p > 0,4$), anxiety ($p > 0,4$) or dyspnea ($p > 0,4$). Similar results were found for QOL to use the Minnesotta Living with HF Questionnaire (MLHFQ) ($p > 0,2$) and FACIT-PAL ($p > 0,9$)[40]. However, the authors point the sample was limited and a significant fraction of the sample gave up participating from early stages of the study.

On the other hand, the randomized controlled trial of Ng and Wong with 84 patients NYHA III-IV CHF and a 3-month intervention by specialized nursing in PC found in MQOL-HK that QOL increased in the group intervened in the physical aspect ($p = 0,011$) as well as in the psychological one ($p = 0,04$), at 12 weeks. QOL in CHQ-C did not report total improvement between groups ($p > 0,585$). ESAS also did not demonstrate a significant difference ($p > 0,68$)[41]. Ng and Wong note that similar research with more frequent visits has shown different results.

Lewin *et al.*, in a prospective non-randomized study with 35 NYHA III-IV CHF outpatients (with two or more admissions and one or more emergency department visits in the past 6 months), integrated into the usual management of half a PC intervention performed in a community environment for 6 months.

It was found that the visit to the emergency department for exacerbations decreased more in the intervened group, which decreased from 90 % to 35 % than in the control group from 86 % to 60 %. Similar results were recorded in terms of hospital readmissions in the intervened group, from 100 % to 20 %, compared to the control group, from 86 % to 40 %, respectively[32].

These results are confirmed by a retrospective cohort study by Wiskar et al. Two cohorts of 2282 patients each (one who was visited by PC during admission and one conventionally managed) were followed for 9 months from an index admission with a primary diagnosis of CHF. Both re-admissions due to exacerbation of CHF in the intervened group vs. the control group (9,3 % vs. 22,4 %) and readmissions for other causes (2,9 % vs. 63,2 %) were decreased[37].

In the meta-analysis carried out by Quinn et al. on the application of PC in chronic diseases such as CHF, where ten of the trials were of patients suffering from this pathology (4068), it was revealed that when applying this care, they present fewer emergency consultations than patients without PC, 20 % vs. 24 %, decrease in the number of hospitalizations, 38 % vs. 42 %, and a lower burden of symptoms[42].

## Palliative care and survival in patients with congestive heart failure

Being diagnosed with CHF is associated with a high mortality rate that may be higher than the associate with many cancers. Although conventional management and PC have obtained better clinical results, mortality is still high[43]. Nevertheless, the improvement in survival is not the goal of the care provided in this type of care[44].

Bekelman *et al.* conducted a randomized clinical trial in which 314 patients predominantly NYHA III-IV received an intervention for 6 months by PC-trained nurses. However, mortality was comparable in both groups at the end ($p > 0,52$)[45]. The previously discussed study by Rogers et al. also found no changes related to PC in the mortality of the intervened group and the control group six months after being operated, 30,7 % and 26,7 % respectively[39].

A meta-analysis on the effect of PC on CHF was conducted by Xu et al. incorporating five studies with a total of 545 NYHA III patients. The usual management of CHF versus the inclusion of PC in management was compared, and the result confirmed that they do reduce hospital readmission ($p = 0,006$), but influence on mortality was not shown ($p > 0,19$)[46]. These results are underlined by the meta-analysis of Zhou et al. with 307 NYHA III patients, who also demonstrate that there is no significant improvement in mortality ($p > 0,22$)[47].

Sahlollbey et al. demonstrate that the application of PC in advanced CHF in 954 patients does have effects on QOL and symptomatic control, but it is limited in survival; therefore, it is necessary to improve the results based on the patient's priorities[48].

Bajwah *et al.*, in their meta-analysis with 36 articles and 7103 patients, did not find difference in mortality between groups intervened in PC and control groups[49]

However, Koser *et al.* report that there is a benefit in terms of mortality at 30 days after hospital discharge when applying PC. In a retrospective study of 415 patients in an outpatient PC setting provided in a clinic specializing in CHF, a mortality range of 1,2 % at 30 days of discharge was shown as compared to 11,6 % in nearby hospitals ($p < 0{,}001$)[50]. Nevertheless, the NYHA classification of included patients is not discussed.

## Conclusion

Studies show a significant influence on quality of life, symptoms and readmissions, which clearly indicates the usefulness of applying palliative care from the diagnosis of congestive heart failure. Despite being a disease whose incidence is increasing, this care is not being integrated at the most opportune time, which prevents patients and health systems from receiving its potential benefits. While the evidence predominantly suggests that survival is not influenced by palliative care, the improvement in quality of life they bring is a variable of enormous importance for patients.

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