

Bow tie Model of Palliative Care as an Early Approach to Providing care for Patients with Heart Failure

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Abstract

Background & objective: In patients with heart failure due to the complications of the disease and the lack of definitive curative treatment, in the majority of cases, the emphasis is laid on reducing these complications and the symptoms of the disease. Therefore, to manage the symptoms and the complications, and reduce the effect of the disease on the patients' quality of life, in addition to routine care, additional care is required among which palliative care is of great importance. The present narrative review aimed to introduce bow tie model of palliative care as an early approach in care for patients with heart failure. **Methodology:** This study introduces early palliative care for patients with heart failure by reviewing the literature on the bow-tie model. **Results:** Although the bow-tie model Early Palliative Care is an important part of end-of-life care, it is not limited to that stage. It is also applied for patients who are in the early stages of their disease. **Conclusion:** Based on the NYHA New York Heart Association functional classification, patients with heart failure are classified in one of four categories and it seems that bow tie model of palliative care is an effective method of reducing the symptoms, complications, and effect of the disease on the quality of life of the patients especially in the patients of Class I and class II who are in the early stages of the disease.

Keywords: Palliative care, Bow-tie model, Heart failure

Introduction

Nearly 23 million people worldwide and over 5.8 million people in the United States suffer from heart failure¹. Heart failure is also one of the leading causes of disability and death in Iran². In Iran, about one percent of the population over the age of 50 and ten percent of the elderly people over the age of 80 suffer from heart failure^{2,3}, so that regarding the epidemiological transition and the increasing rate of the elderly population as well as the criticality high prevalence of cardiovascular risk factors in both genders, only 4% of the 15-44 age group and 1% of the 45-64 age group had no cardiovascular risk factor, the high incidence and prevalence of heart failure is justifiable as in the not too distant future, it will be more than its present prevalence of 3500 patients per 100,000 population along with a change in population pyramid and the aging of Iran's young people^{2,3}.

Heart failure is a debilitating disease profoundly affecting the functional conditions, quality of life and socioeconomic status of the patients and their families⁴. Furthermore, it impairs the patients' sexual function, occupational and family roles, and social life^{5,6}. Due to the complications of the heart failure and the reduced quality of life, the patients, in addition to medication treatment, require special care to relieve pain and disability, so they can adapt to the existing conditions and apply their ability to continue living and pursue their physical and occupational activities decently⁷.

In patients with heart failure due to the complications of the disease and the lack of definitive curative treatment, in the majority of cases, the emphasis is laid on reducing these complications and the symptoms of the disease. Therefore, to manage the symptoms and the complications, and reduce the effect of the disease on the patients' quality of life, in addition to routine care, additional care is required among which palliative care is of great importance^{8,9}. This is interdisciplinary and patient-centered care, which motivates the patient to continue the care and provides spiritual support, physical comfort and cooperation with the patient's

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family to care for patient¹⁰. If we use palliative care in the early stages of the disease, it can lead to positive consequences such as reduced complications, relief from physical and mental stress, and ultimately improvement in the patient's quality of life¹¹. Considering the above, the present narrative review aimed to introduce bow tie model-based palliative care as an early approach in care for patients with heart failure.

Methodology

The present study is a narrative non-systematic review conducted a comprehensive synthesis of published studies on bow tie model-based palliative care in patients with heart failure. To do so, keywords including bow tie model, palliative care, and heart failure were searched in databases of PubMed, Scopus, Google Scholar, and Science Direct using the AND and OR indicators.

Results

After examining the available studies, texts, and specialized websites, the followings explained in order.

Palliative care

Palliative care is an approach that improves the quality of life of patients and their families facing the problems associated with life-limiting illnesses through the prevention and relief of suffering by means of early identification, impeccable assessment, and treatment of pain and other physical, spiritual and psychosocial problems. In fact, from the moment on the diagnosis is established, palliative care helps the patients and their families to cope with the pain, suffering, and complications caused by the disease¹² and emphasizes that more particular attention should be paid to the person with the disease than to those with other diseases. Actually, comprehensive patient care will never be provided without palliative care¹³.

Bow tie model-based palliative care

This care model guarantees the patient survival along with curative treatment and delineates the path of care well, and demonstrates the dual reality of "hope for the best, plan for the worst." Trying to survive is a remarkable reality in this model of care, but the reality of death is also taken into account, and the concepts and pathways existing in this model can be defined by different cultures and implemented with regard to the broad definition of homecare in those cultures^{14, 15}.

Bow tie model was first introduced by Dr. Philippa H. Hawley medical oncologist of Vancouver Cancer Centre and derived from the Canadian Hospice palliative Care Association Model¹⁴. This model places greater emphasis on palliative care and reducing disease complications, and it is not restricted to patients receiving end-of-life care but is also applicable to patients who are in the early stages of their disease¹⁶.

This model emphasizes complementary methods of both palliation and treatment as both concepts are simultaneous and the path of care is not one-sided. The model's name is derived from two symmetrical triangles of "disease management" and "palliative care" that take the form of a bow tie^{14, 15}. This model can be implemented according to the patient's specific circumstances, and the goal of palliative care model is to manage the symptoms and complications of the disease that can improve the patient's quality of life and widen the gap between the onset of disease and disability resulting from its progression. Unlike single-sided triangles, a double-sided triangle of this care model can have all the consequences of a disease, from its diagnosis to the end, which means that survival and death are both acceptable and possible. The shape of each triangle corresponds to the base of the other triangle, indicating that palliative care can be implemented from the moment on the diagnosis is reached or from early stages of the disease and continued with medication therapy for the rest of life. This model suggests that palliative care is not only restricted to the last few months of a patient's life, but also plays an important role early in the course of the disease and during it as well, and potentially survivorship is its main goal¹⁴. In addition, it builds patients' hopes up and reduces their negative emotions such as expecting impending death¹⁷ Fig.1.

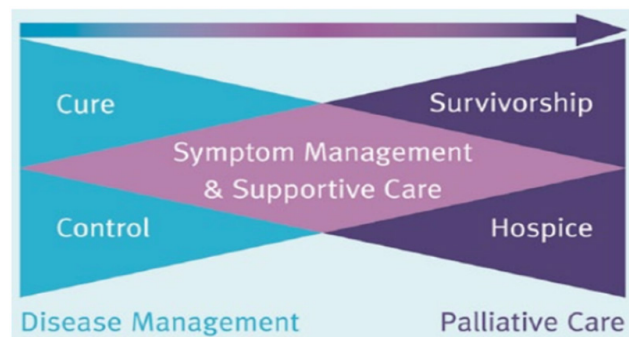


Figure 1: Palliative care based on the Bow tie model, Hawley, 2017¹⁸.

Discussion and Conclusion

In the present model of care, patient recovery is considered as one of the goals of palliative care implementation, and regarding the onset of palliative care early in the course of the disease, the complications are far less severe. On the other hand, with regard to control over the complications of the disease, the gap between the diagnosis and the end-stage of the disease widens so that the patient can spend more time without the adverse and debilitating effects of the disease¹⁴. In a study by Temel et al. 2010, the results indicated that early palliative care has led to improved quality of life, control of depression symptoms, and increased survival of patients with non-metastatic small cell lung cancer¹⁹.

There is currently no comprehensive and inclusive palliative care for patients with heart failure, and there is just limited number of patients whom the care is available for. Furthermore, there is evidence that shows the lack of management and palliative care for the patients in early stages of heart failure^{20, 21}. Therefore, it is essential to adopt early palliative care for patients with heart failure who do not have adequate access to medication and pain relief treatments and also have a low quality of life due to the disease¹¹.

Based on the NYHA functional classification, patients with heart failure are classified in one of four categories and it seems that bow tie model of palliative care is an effective method of reducing the symptoms, complications, and effect of the disease on the quality of life of the patients especially in the patients of Class I and class II who are in the early stages of the disease. Because in this model, unlike previous models where palliative care is utilized solely for patients with a terminal illness, implementation of palliative care begins from the moment on the diagnosis is established and increases along with disease progression according to the patient's needs¹⁴.

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