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Original article

Symptom cluster management strategies and outcomes in patients with heart failure

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Background: Patients with heart failure have to endure different symptoms of heart failure, and the prognosis of the disease is continuous and very difficult to predict the symptoms that will happen in advance.
Objective: The present descriptive research aimed to investigate symptom cluster management strategies and outcomes of symptom cluster management strategies in patients with heart failure.
Methods: Dodd's symptom management model was used as the conceptual framework of the present descriptive research. One hundred and ten patients with heart failure who sought treatment at the heart failure clinic and heart clinic of King Chulalongkorn Memorial Hospital were recruited by means of convenience sampling. The instruments used to collect to data were the demographic characteristics questionnaire and the symptom clusters, symptom cluster management, and symptom cluster management outcomes in patients with heart failure questionnaire.
Results: The findings revealed that the acute symptoms included panting/shortness of breath (78.2%), insomnia/difficulty sleeping (54.5%), and chest pain (40.9%). The chronic symptoms included dyspnea on exertion (56.4%), body weight gain (48.2%), swelling in different bodily organs (48.2%). The emotional symptoms consisted of anxiety (53.6%), irritability (50.9%), and memory problems/forgetfulness (30.9%). Regarding symptom cluster management strategies, the subjects managed their acute symptoms with inhaling and exhaling slowly and deeply, lying down with the head raised, reducing fluid intake, and going to the hospital. In terms of overall symptom management outcomes, it was found that 25.0% to 48.0% of the subjects had improved symptoms. In addition, as for management of chronic symptoms, the subjects assessed the symptoms and controlled their fluid intake, adjusted the doses of diuretics, used breathing management, and at with the head raised high. On the overall, 23.0% to 36.0% of the subjects had improved symptoms. Also, when the subjects had symptoms related to the heart such as faster heartbeats/palpitation, they would call the hospital and rushed there.
Conclusion: The patients with heart failure had a variety of symptoms and they selected symptom management strategies based on their perceived symptom severity or the connection they made between new symptoms and previous experiences. Some of their symptom management strategies were appropriate, whereas others were not and could be life-threatening. Therefore, nurses should offer advice on management of symptom clusters rather than emphasizing specific.

Keywords: Heart failure symptom clusters, management strategies, outcomes.

Patients with heart failure have to suffer from a variety of symptoms of more than one bodily system. Different symptoms that simultaneously occur are interrelated within the same symptom cluster or with other symptom clusters, leading to synergistic effects, which can cause an effect greater than the sum of their individual effects. These symptoms may or may not result from the same cause; hence, they are called symptom clusters.[1] A review of previous researches in Thailand has shown that studies have been

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conducted to investigate symptom experiences of patients with heart failure, with a focus on both single symptoms [2] and symptom clusters.[3] When the patients have perception of symptoms, symptom severity, and symptom distress, they manage their symptoms they are facing, probably using more than one symptom management strategy with different duration. Also, the outcomes of symptom management strategies selected by the patients vary, but the patients themselves will realize which management strategies help them feel better.[4] And the symptom management model of Dodd M, *et al*.[5] was employed as the conceptual framework of the study. The present descriptive research aimed at investigating symptom cluster management strategies and outcomes of symptom cluster management strategies in patients with heart failure.

Materials and methods

After the Institution Review Board (IRB) having approved our study project, the subjects of the study were recruited by means of convenience sampling. The inclusion criteria were as follows: they were at least 18 years of age, they had been diagnosed with heart failure by a physician, with the severity levels 2 to 4, they were able to communicate in the Thai language, they had symptom experience of heart failure, and they were willing to participate in the study. The total number of subjects was 110. Data collection took place between April 2017 and January 2018. The instrumentation included the demographic characteristics questionnaire was composed of two parts. Part 1: The demographic characteristics questionnaire was composed of two parts. The first part elicited data regarding demographic characteristics of the subjects completed by the subjects and data regarding their illness retrieved from the patients' existing medical records by the researcher. The second part elicited data regarding symptom cluster management strategies and outcomes of symptom cluster management strategies designed by the researcher. The items in the second part were divided into four columns of symptom clusters, perception of symptoms of heart failure, symptom cluster management strategies, and outcomes of symptom cluster management strategies. The subjects were asked to assess whether in the past six months they had experienced any of the symptom clusters or not. If they had, they had to assess whether such symptoms were considered symptoms of heart failure and indicate which symptom cluster management strategies they had used by specifying the strategies as well as their outcomes. If they felt that their symptoms improved, they had to specify by how many percent approximately. However, if they felt that their symptoms remained unchanged or became worsened, they had to respond to open-ended questions of what they did after that, how, why, and when they finally decided to call or go to the hospital. Validation of the instrument, the symptom cluster management strategies and outcomes of symptom cluster management strategies questionnaire was submitted to a panel of five experts to ensure its content validity and language appropriateness. The questionnaire was then revised based on the experts' comments and suggestions on how to rearrange the symptom cluster management strategies and how to improve the contents regarding outcomes to ensure ease of understanding and under supervision of the thesis adviser before it was tried out with 12 patients with heart failure whose demographic and clinical characteristics were similar to those of the subjects of the main study. It was found that the subjects in the pilot study were able to understand the questionnaire items without any trouble.

Statistical analysis

The data that had been examined were analyzed using the SPSS Program. Descriptive statistics of frequency, percentage, mean, and standard deviation (SD) were employed to analyze data regarding demographic and clinical characteristics and symptom cluster management strategies and their outcomes.

Results

Demographic and clinical characteristics of the subjects

The mean age of the patients at the heart failure clinic was 60.3 years old (min-max = 32 - 88; SD = 13.7), while the mean age of the patients at the heart clinic was 61.2 years old (min- max = 27 - 87; SD = 16.0). More than half of the subjects from both clinics were male (60.0% and 61.8%). More than three quarters of the subjects at the heart failure clinic (78.2%) had received information on management of symptoms of heart failure, whereas 21.8% indicated that they had never received such information, and more than one-third (36.4%) received information on management of heart failure symptoms from physicians and nurses. On the other hand, more than half of the subjects at the heart clinic (56.4%) had never received information on management of heart failure symptoms.

With regard to the cause of non-cardiac heart failure, the subjects at the heart failure clinic had the Left Ventricular Ejection Fraction (LVEF) between 11.0% and 49.0% (mean = 25.9%; SD = 6.8), while the subjects at the heart failure clinic had the LVEF between 21.0% and 59.0% (mean = 37.8%; SD = 8.9). Considering the functional classification of heart failure of the New York Heart Association, it was seen that 34.5% of the subjects at the heart failure clinic were classified in Class III and 47.3% of the subjects at the heart clinic were classified in Class II.

Regarding the prognosis of heart failure, more than half of the subjects had Stage C heart failure. More than three-fourths of the subjects at the heart failure clinic (76.4%) were hospitalized 1 to 5 times per year (Median = 1.0; SD = 3.1) and more than half of the subjects at the heart clinic (56.4%) were admitted into the hospital one to five times per year (Median = 1.0; SD = 0.9). More than half of the subjects (52.7%) had more than one co-morbidity and had been diagnosed with heart failure for one to five years, as outlines in Table 1.

Symptom cluster management strategies and outcomes of symptom cluster management strategies in patients with heart failure

Acute symptom cluster

As regards management strategies of the symptoms in the acute symptom cluster, the subjects managed their symptom of panting/shortness of breath with inhaling and exhaling slowly and deeply and lying down with the head raised. Almost half of the subjects (48.2%) had improved symptoms. For those who felt that their symptoms had been relieved. In addition, the most common symptom management strategies of fatigue/loss of energy in the extremities were sitting down/resting and having a massage. Nearly one-fourth of the subjects (24.5%) felt that their symptoms were better. For those who felt that their symptoms were relieved. As regards the symptom of insomnia/difficulty sleeping, approximately one-third of the subjects (33.6%) felt that their symptoms improved as a result of their strategies. For those who felt that their symptoms were relieved, the most common symptom management strategies they chose were taking sleeping pills and meditating/praying. As for the symptom of coughing with pink foam/bloody phlegm, it was found that 12.7% of the subjects felt that their symptoms improved, whereas another 12.7% felt that their symptoms remained the same. For those who felt that their symptoms were relieved, the most common symptom management strategies were lying with their head raised and drinking warm water. Regarding nighttime fatigue, 21.8% of the subjects who indicated that their symptoms were better after using symptom management strategies. For those who felt that their symptoms had improved, the most common symptom management strategies chosen by them were lying down with the head raised and inhaling and exhaling slowly and deeply. When considering the symptom management strategies the subjects used to manage their symptom of orthopnea, almost one quarter of the subjects (24.5%) felt that their symptoms became better. For those who found that their symptoms were relieved, the most common symptom management strategies were lying with the head raised and inhaling and exhaling slowly and deeply. Finally, as regards the symptom of chest pain, the most common strategies they chose were sitting down/resting, inhaling and exhaling slowly and deeply, and rushing to the hospital and massaging the chest. One-fourth of the subjects (25.5%) felt that their symptoms were relieved, and for these subjects. (Table 2)

Table 1. Symptoms cluster of patients with heart failure (n = 110).

Signs and symptoms	Patients with heart failure	
	n	%
Acute symptom clusters		
Panting/shortness of breath	86	78.2
Insomnia/difficulty sleeping	60	54.5
Chest pain	45	40.9
Chronic symptom cluster		
Dyspnea on exertion	62	56.4
Body weight gain	53	48.2
Swelling in different bodily organs	53	48.2
Emotional symptom cluster		
Anxiety	59	53.6
Irritability	56	50.9
Memory problems/forgetfulness	34	30.9

Table 2. Acute symptom clusters (n = 110).

Symptom cluster management strategies	Acute symptom cluster						
	Shortness of breath (n = 86)	**Coughing with pink foam (n = 31)**	**Nighttime fatigue (n = 38)**	**Orthopnea (n = 41)**	**Fatigue (n = 41)**	**Insomnia (n = 60)**	**Chest pain (n = 45)**
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Inhaling and exhaling slowly and deeply	59 (68.6)		21 (55.3)	29 (70.7)	9 (22.0)		14 (31.1)
Lying down with the head raised	53 (61.6)	18 (58.0)	24 (63.2)	23 (56.1)			
Sleeping in a sitting position	39 (45.3)		11 (28.9)	12 (29.3)			
Using a pillow to support the back	31 (36.0)		12 (31.6)	22 (53.7)			
Rushing to the hospital	30 (34.9)		9 (23.7)				17 (37.8)
Having less fluid intake				12 (29.3)			
Taking medication		15 (48.4)					
Drinking warm water		15 (48.4)					
Lying down on one side of the body		10 (32.3)					
Using oxygen therapy		10 (32.3)					
Having a massage			9 (23.7)		14 (34.1)	13 (21.7)	
Sitting down/resting					26 (63.4)		15 (33.3)
Using inhaler					9 (22.0)		13 (28.9)
Talking to others					8 (19.5)		
Exercising					6 (14.6)	16 (26.7)	
Reading, listening to music or watching TV					6 (14.6)	14 (23.3)	
Taking antidepressants/sleeping pills							
Meditating/praying						34 (56.7)	
Having a warm drink						16 (26.7)	
Turn off the dark light						14 (23.3)	
Waiting for sleepy						13 (21.7)	
Massaging the chest						11 (18.3)	20 (44.4)
Taking sublingual medication							15 (33.3)

In terms of overall symptom management outcomes, it was found that 25.0% to 48.0% of the subjects had improved symptoms. However, it is worth noting that only a small number of subjects perceived that insomnia and coughing with pink foam phlegm were related to heart failure, so their symptom management strategies were not specific to heart failure.

Chronic symptom cluster

First of all, swelling in bodily organs, when considering outcomes, it was found that 25.5% of the subjects felt that their symptoms improved. For those who reported that their symptoms were relieved, the most common symptom management strategies they used were measuring body weight and adjusting the dosage of diuretics based on the doctor's advice and reducing fluid intake. As regards increased desire to sleep and rest, more than one-fourth (27.3%) found that their symptoms improved, and for these subjects, the most common symptom management strategies were sitting down/resting and reading/listening to music/watching television (TV). With regard to dyspnea on exertion, more than one-third of the subjects (36.4%) reported that their symptoms improved, and for these subjects, the most common symptom management strategies were inhaling and exhaling slowly and deeply and lying down with the head raised. In addition, the most common symptom management strategies the subjects used to manage their symptom of increased body weight the most common symptom management strategies were avoiding salty food and measuring body weight. Nearly one-fourth of the subjects (22.7%) found that their symptoms improved, and for these subjects, Concerning faster heartbeats/palpitation, it was found that 19.1% of the subjects felt that their symptoms improved, while the other 19.1% did not. For those who had better symptoms, the most common symptom management strategies were sitting down/resting and rushing to the hospital and calling the nurses. Fainting/loss of consciousness, a few subjects (5.5%) felt that their symptoms remained unchanged. For those whose symptoms improved, the most common symptom management strategies they utilized were sitting down/resting and rushing to the hospital and using inhalers, using oxygen therapy, and calling the nurses. Moreover, when it came to chest pain, one quarter of the subjects (25.5%) felt that their symptoms improved as a result. For them, the most common symptom management strategies were sitting down/resting, inhaling and exhaling slowly and deeply, and rushing to the hospital and massaging the chest. Finally, the subjects managed their bloated stomach, for this group of subjects, the most common symptom management strategies were taking antacid and eating a small amount of food at a time. One-fourth of the subjects (25.5%) felt that their symptoms improved. In addition, as for management of chronic symptoms, the subjects assessed the symptoms and controlled their fluid intake, adjusted the doses of diuretics, used breathing management, and at with the head raised high in Table 3 are present.

Emotional symptom cluster

The most common symptom management strategies they used their depression were the most common symptom management strategies they used were listening to music/watching TV and being optimistic and consulting family members were consulting the doctors/nurses and listening to music/watching TV, consulting family members and exercising, and being optimistic. Only 10.9% of the subjects felt that their symptoms improved. Furthermore, the subjects managed their memory problems/forgetfulness, only 13.6% of the subjects felt that such strategies helped improve their symptoms, and for them, the most common symptom management strategies were asking relatives to assist with daily living activities and putting important things in the exact same place. As for anxiety, more than one-fourth of the subjects (27.3%) had improved symptoms. For this group of subjects, the most common symptom management strategies they selected were consulting family members and consulting the doctors/nurses. With regard to irritability, the most common symptom management strategies included consulting family members, listening to music/watching TV, and taking antidepressants and being optimistic, exercising, and having a religious talk with the monk/priest/imam. Fewer than one quarter of the subjects (20.0%) had better symptoms, but more than one-fourth (28.2%) felt that their symptoms remained unchanged. In addition, the symptom management strategies the subjects chose to deal with their decreased sexual desire the most common symptom management strategies the subjects used were discussing with the spouse and doing nothing. It could be seen that 10.0% of the subjects had improved symptoms, but 13.6% felt that there was no change. In order to manage loss of self-image, the most common symptom management strategies were

Table 3. Chronic symptom cluster (n = 110).

Symptom cluster management strategies	Chronic symptom cluster						
	Swelling in bodily organs (n = 53) n (%)	Dyspnea on exertion (n = 62) n (%)	Increased body weight (n = 53) n (%)	Bloated stomach (n = 46) n (%)	Increased desire to sleep (n = 49) n (%)	Palpitation (n = 47) n (%)	Chest pain (n = 45) n (%)
Measuring body weight	32 (60.4)		23 (43.4)				
Adjusting the dosage of diuretics	27 (50.9)		20 (37.7)				
Reducing fluid intake	21 (39.6)						
Measuring the amount of urination	15 (28.3)		20 (37.7)				
Avoiding salty food	13 (24.5)		18 (34.0)				
Inhaling and exhaling slowly and deeply		40 (64.5)	22 (41.5)		9 (18.4)		14 (31.1)
Lying down with the head raised		23 (37.1)					
Sitting down/resting		15 (24.2)			32 (65.3)	16 (34.0)	15 (33.3)
Staying at a cool place		14 (22.6)					
Lying down on one side of the body		13 (21.0)					
Taking antacid							
Refraining from eating				20 (43.5)			
Eating a small amount of food				15 (32.6)			
Using ointment/inhaler				15 (32.6)		12 (25.5)	13 (28.9)
Making oneself vomit				11(23.9)			
Lying down				11(23.9)			
Massaging at stomach				9 (19.6)			
Reading/listening to music/watching TV				9 (19.6)	13 (26.5)		
Freshening up					13 (26.5)		
Talking to others					12 (24.5)	17 (36.2)	
Calling the nurses						16 (34.0)	
Rushing to the hospital							17 (37.8)
Massaging the chest							20 (44.4)
Taking sublingual medication							15 (33.3)

Table 4. Emotional symptom cluster. (n = 110).

Symptom cluster management strategies	Emotional symptom cluster						
	Depression (n = 20)	**Anxiety (n = 59)**	**Irritability (n = 56)**	**Loss of self-image (n = 20)**	**Memory problems/ forgetfulness (n = 34)**	**Reduced sexual desire (n = 28)**	**Lack of concentration (n = 22)**
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Consulting the doctors/nurses	8 (40.0)	26 (44.1)	19 (34.0)	10 (50.0)			11 (50.0)
Listening to music/watching TV	8 (40.0)	18 (30.5)	17 (30.4)				8 (36.4)
Consulting family members	7 (35.0)	24 (40.7)		9 (45.0)			
Exercising	7 (35.0)	17 (28.8)		8 (40.0)			
Being optimistic	6 (30.0)		16 (28.6)	8 (40.0)			7 (31.8)
Going to the temple/ church/mosque		15 (25.4)		5 (25.0)			6 (27.3)
Taking antidepressants/sleeping pills			17 (30.4)				6 (27.3)
Religious talks with the monk/priest/ imam			17 (30.4)	4 (20.0)			
Taking medication as prescribed bythe doctors					17 (50.0)		
Putting important things in the exactsame place					13 (38.2)		
Asking relatives to assist with daily living activities and undergoingphysical therapy					12 (35.3)		
Putting up small notes as reminders					12 (35.3)		
Undergoing physical therapy					11 (32.4)		
Doing nothing						17 (60.7)	
Reading/watching the movies						11 (39.3)	
Talking with spouse						10 (35.7)	
Using lubricant						9 (32.1)	
Exercising						7 (25.0)	

being optimistic and consulting family members and consulting the doctors/nurses, exercising/ and having a religious talk with the monk/priest/imam. When considering outcomes, it could be seen that 8.2% of the subjects had improved symptoms, whereas 8.2% had the symptoms that remained unchanged. Finally, the symptom management strategies the subjects utilized to manage their lack of concentration, the most common symptom management strategies were consulting the doctors/nurses and being optimistic and taking antidepressants and going to the temple/ church/mosque. The findings showed that 10.9% of the subjects had improved symptoms. For those who felt that their symptoms were relieved, Finally, as for management of emotional symptoms, the subjects managed the symptoms that they were experiencing not specific to heart failure, as Table 4.

Discussion

Acute symptom cluster

The subjects had experienced acute symptoms of fatigue and fatigue to a varying extent, which were related to volume overload and caused difficulty sleeping. It could be explained that specific clinical symptoms were congestion and volume overload as well as hypoperfusion.[6] In the present study, the subjects described acute symptoms which were consistent with left ventricular failure including panting/ shortness of breath, orthopnea at night, insomnia/ difficulty sleeping, and pulmonary edema which was manifested in the form of coughing with pink foam or bloody phlegm. Such findings yielded support to previous studies which have reported that the acute symptom cluster of heart failure are caused by congestion of blood in the left ventricle and lungs, which reflects insufficient cardiac output. The symptoms generally reported by patients with heart failure include shortness of breath, fatigue, and sleep problems due to nocturnal dyspnea. Also, during this stage, acute neurological and hormonal symptoms can also be detected.[2, 7 - 9]

In this study, it was discovered that more than half of the subjects (54.5%) suffered from difficulty sleeping/insomnia which resulted from orthopnea. They also suffered from coughing when lying down flat, which prevented them from having a normal sleep. Previous studies undertaken overseas have shown that there was a relationship between panting and fatigue in patients with heart failure [10] and fatigue made it difficult for the patients to sleep.[11] Almost half of the patients (40.9%) suffered from chest pain. Generally, chest pain results from acute pulmonary edema due to an increase in pressure in the pulmonary veins, together with failure of the left ventricle when there is fluid in the pulmonary sacs, thus obstructing gas exchange. In addition to this, the lungs lose their elasticity due to pulmonary edema, which may occur naturally or due to sudden energy exertion, thus affecting the responses of the left ventricle to an excessive blood volume. Thus, the patients suffer chest pain instead of inability to breathe. This condition is often found in patients with heart failure due to coronary artery disease that is a major cause of failure of the left ventricle.[12] The patients develop chest pain during rest and while doing activities. A study carried out in 1,032 patients with heart failure showed that 61.7% of them had chest pain [13] due to reduced cardiac output.[14] In terms of overall symptom management outcomes, it was found that 25.0% to 48.0% of the subjects had improved symptoms. However, it is worth noting that only a small number of subjects perceived that insomnia and coughing with pink foam or bloody phlegm were related to heart failure, so their symptom management strategies were not specific to heart failure.

Chronic symptoms cluster

Chronic symptoms of heart failure result from reduced cardiac output, making different tissues in the body lack blood supply. The ventricles become thickened, and left ventricular remodeling takes place, both structurally and functionally. Initially, the heart should be able to adjust, but if the prognosis of the disease continues, the compensation of the heart will eventually reduce, causing tissues of different bodily organs to lack blood supply. It has been found that patients would have failure of both the right and left ventricles. Common clinical symptoms include fatigue, dyspnea on exertion, coughing or pulmonary congestion, swelling, and difficulty in breathing.[14]

In this study, the subjects suffered dyspnea on exertion which is generally common among patients with chronic heart failure. In the initial phase, the patients develop fatigue while exerting energy or doing activities. This results from pulmonary congestion due to an increase in pulmonary pressure which leads to dyspnea on exertion.[15] It is found that patients generally have orthopnea together with dyspnea on exertion. Other symptoms of chronic heart failure are paroxysmal nocturnal dyspnea and coughing. [14]

Almost half of the subjects (48.2%) experienced swelling and the same percentage had body weight gain. Such symptoms result from accumulation of fluid and sodium [15], which is an indicator of right sided heart failure. When left sided heart failure occurs, cardiac output will be reduced. This leads to an increase in re-absorption of sodium and fluid of the kidney and a decrease in urination, so the patients have body weight gain. Nearly half of the subjects (44.5%) had an increased desire to sleep and rest. When the cardiac output in one minute reduces, insufficient blood supply to different bodily organs causes oxygen deprivation of tissues and slower metabolism, so the patients develop fatigue and loss of energy. [16] Moreover, 42.7% of the subjects suffered from faster heartbeats/palpitation, and possible chest pain, because of reduced cardiac output. [10] The adrenergic neurological system is then stimulated in an attempt to increase cardiac output. This may result from abnormalities of the heart, as well as side effects of anti-arrhythmia medication in the digitalis group.[17] The findings of this study were similar to the findings of a study that palpitation was associated with insomnia and difficulty breathing, which are early symptoms of heart failure caused by increased functioning of the sympathetic.[18]

Besides, 41.8% of the subjects suffered from bloated stomach due to hepatic congestion and ascites. Some may have also suffered from abdominal pain. In fact, patients with heart failure may have to endure such symptoms as nausea, vomiting, and loss of appetite. [2 - 3, 19] Finally, 40.9% of the subjects experienced chest pain, which could be explained like chest pain in the acute symptom cluster. Simply put, chest pain can also be found in the chronic symptom cluster of patients with heart failure.

Emotional symptom cluster

This could be explained that the emotional symptom cluster is commonly found in patients with chronic heart failure who need to undergo treatment for a long period of time with no complete cure. As a consequence, the patients suffer from both psychological and emotional effects including depression, anxiety, irritability, loss of self-esteem, and loss of self-image.[2, 20 - 23]

Besides emotional symptoms, the subjects also suffered from memory problems/ forgetfulness (30.9%) and lack of concentration (20.0%). Generally, such symptoms take place when blood supply to the brain is reduced, both short-term and long-term reduction. They can also result from cerebrovascular abnormalities that deprive the brain from blood, hence oxygen deprivation. If oxygen deprivation is severe, the brain can be damaged, and the patients' perception and memory can be adversely affected.[24] Finally, 18.2% of the subjects suffered from depression, in fact, it has been documented that depression is the most common symptom in patients with heart failure.[25]

Symptom management strategies in patients with heart failure

If patients with heart failure are able to assess the symptoms and have understanding of the relationships among the symptom clusters of heart failure, they should become aware of the symptoms in their initial stages during which the body is trying to adjust itself to compensate of the abnormalities that have occurred. As a result, they should be able to more appropriately and effectively manage the symptoms, and this can help reduce hospital admission rates as well as severity of the symptoms that can be life-threatening. Patients with heart failure have to endure various symptoms that can affect them physically and psychologically. [8, 26 - 27]

As regards symptom cluster management strategies, the subjects managed their acute symptoms with inhaling and exhaling slowly and deeply, lying down with the head raised, reducing fluid intake, and going to the hospital. In terms of overall symptom management outcomes, it was found that 25.0% to 48.0% of the subjects had improved symptoms. However, it is worth noting that only a small number of subjects perceived that insomnia and coughing with pink foam or bloody phlegm were related to heart failure, so their symptom management strategies were not specific to heart failure.

In addition, as for management of chronic symptoms, the subjects assessed the symptoms and controlled their fluid intake, adjusted the doses of diuretics, used breathing management, and at with the head raised high. Finally, as for management of emotional symptoms, the subjects managed the symptoms that they were experiencing not specific to heart failure. On the overall, 23.0% to 36.0% of the subjects had improved symptoms. Also, when the subjects had symptoms related to the heart such as faster heartbeats/palpitation, they would call the hospital and rushed there. Finally, as for the management of emotional symptoms, the subjects managed the symptoms that they were experiencing not specific to heart failure.

Conclusion

The findings suggested that the patients perceived some symptoms as abnormal symptoms, but they may not have thought that such symptoms were related to heart failure or they may have not been able to choose appropriate symptom management strategies, nurses should offer advice on abnormal symptoms that may occur and appropriate symptom management strategies for such symptoms to ensure effectiveness. A longitudinal research study should be conducted to investigate long-term symptom experience in patients with heart failure.

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