Original Article

Abdominal Massage to Relieve Constipation among Patients with Heart Failure: A Case Study

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Abstract

Background: Constipation among patients with heart failure can have a serious effect because Valsalva maneuver during defecation process could increase heart workload and aggravate patient's condition. Therefore, appropriate treatment is needed to overcome the problem. One of the nurse's independent actions in constipation management is abdominal massage.
Objective: to relieve constipation among patients with heart failure
Methodology: This case study was conducted in a regional hospital located at the Eastern part of Indonesia during December 2017. Abdominal massage was given daily 2 hours after lunch was given as intervention. Five heart failure patients with constipation and hospitalized in cardiac ward were participated in this study. Constipation degree was measured by Constipation Assessment Scale (CAS) and feces consistency was determined by Bristol Stool Chart (BSC). Patients in this study were selected sequentially during December 2017.
Results: Constipation degree were decrease and feces consistency changed after intervention. Abdominal massage performed by directly pressing the abdominal wall in a sequence can increase gastrocolic reflex and contraction of the intestine and rectum.
Conclusions: Abdominal massage is effective in relieving constipation among heart failure patients. Therefore, we propose abdominal massage is integrated as regular nursing intervention given to heart failure patients with constipation.

Keywords: abdominal massage, heart failure, constipation, case-study

Introduction

Heart failure is a major cause of morbidity and mortality worldwide. The risk of heart failure increases over time. According to WHO, in 2013, about 17.3 million people died from cardiovascular disorders, representing 30% of all global deaths. Of these deaths, an estimated 7.3 million are caused by heart disease. The incidence of heart failure is increasing annually. About 5.8 million patients in the United States suffer from heart failure with the addition of 550,000 incidents per year (Bui, Horwich, & Fonarow, 2011). The high rate of the heart failure incidence causes increase of hospital visits annually. This is certainly a concern of health care workers, particularly nurses, to improve their nursing care in maintaining patient's quality of life. One of the problems that may arise among patients with heart failure is constipation (Continence Foundation of Australia, 2015).

Constipation is a term used to describe abnormal frequency or irregular defecation, abnormal stool hardening resulting in difficult and sometimes painful feces, decreased feces volume, or long-term feces retention in the rectum (Smeltzer, Bare, Hinkle, & Cheever, 2008). Among patients with heart failure, the cause of constipation is associated with weakness, immobility, and lack of physical activity. This is related to a decrease in cardiac output so that patients cannot tolerate physical activity or exercise (LeMone et al., 2015; Lewis et al., 2014; Smeltzer et al., 2008). Other causes are fluid restriction and diuretic medication. Diuretics can cause constipation due to fluid loss (Schuster, Kosar, & Kamrul, 2015).

Constipation among patients with heart failure can cause serious effects, when the patient strains, he holds his breath while pressing and holding the abdominal muscles. This increases the intra abdominal and intra thoracic pressure and reduces the return of venous flow to the heart. The heart rate becomes low (bradycardia) while the cardiac output is reduced and there is a decrease in arterial pressure for a moment. On the other hand, when the patient is relaxed, the thoracic pressure drops resulting in a sudden blood flow to the heart, which increases the heart rate (tachycardia) and immediate arterial pressure. This condition could increase the workload of the heart and aggravate the patient's condition (Lewis, Dirksen, Heitkemper, Bucher, & Harding, 2014). Therefore, an appropriate treatment is needed to overcome the problem of constipation.

Treatment of constipation can be done with either pharmacology or non pharmacology therapy. The pharmacological therapy that can be done is laxative while non-pharmacological therapy such as exercising, mobilization, fluid administration, high-fiber diet and toileting regimen (Kyle, 2011). However, as with other pharmacological therapies, the use of laxative therapy in constipation patients also has side effects that can cause colon mucosal atrophy, muscle thickening and fibrosis, colon perforation (Williams & Hopper, 2007), increased constipation and fecal impaction, and may be a risk factor for onset of colorectal cancer (Sinclair, 2010). Kim & Bae (2013); Silva & Motta (2013); Kyle (2011); Lamas (2011); Sinclair (2010); Emly (2007) explains that in addition to using pharmacological therapy, constipation can also be treated with complementary therapies, and one of them is abdominal massage.

Abdominal massage is a self-sustaining nurse intervention that effectively overcomes constipation. This intervention also does not cause harmful side effects because it is a non-invasive action. Based on the interview result with the nurses of Cardiovascular ward in a regional hospital at the Eastern part of Indonesia and researcher's observation for 4 weeks, one of the problems that heart failure patients often experience during hospitalization that they did not defecate more than three days. Treatment commonly applied when the complaint is not resolved is more dominantly of collaborative action with laxative giving. As for nursing intervention, nurses only provide education about food containing high fiber such as eating papaya, other self-nursing intervention such as abdominal massage has never been applied in the room. Abdominal massage could be done by the patient himself and it is relatively cheap. In abdominal massage, direct pressure on the abdominal wall is done sequentially and then interspersed with relaxation time so that it can rapidly increase gastrocolic reflex and increase contraction of the intestine and rectum (Kyle, 2011; Lamas, 2011; Sinclair, 2010; Emily, 2007).

There is lots of literature exploring the effect of abdominal massage to overcome constipation. But until now, there is no article determining the effect of abdominal massage to relieve constipation among patients with heart failure. The application of this intervention aims to identify the effectiveness of abdominal massage to overcome constipation in patients with heart failure by looking at patient comfort.

Materials and Methods

Design: The method used is case study by performing abdominal massage to patients with heart failure. Five heart failure patients participated in this study. Constipation Assessment Tools (CAS) (Molin et al., 2012) and Bristol Stools Scale (BSC) (Lewis & Heaton, 1997) were used to measure constipation.

Participants: Patients in this study were selected sequentially during December 2017 at cardiovascular ward in a regional hospital at the Eastern part of Indonesia. The inclusion criteria were: heart middle to older age people, no defecation> 3 days, willing to give written consent, diagnosed as heart failure, able to communicate in Indonesian and local languages (Buginese/ Makassarese), experiencing activity intolerance and fluid restriction. Of the 5 patients, 4 patients received laxatives as an alternative to avoid straining during defecation, and a patient did not get laxatives.

Procedure

Constipation Assessment: To measure the level of constipation using CAS performed at the first time to get patients who have not defecated for 3 days or more. Furthermore, to assess the consistency of stool using Bristol stool in the form of fecal images and shown directly to the patient.

Intervention: Abdominal Massage was given daily, 2 hours after lunch. Before performing abdominal massage, patients and families are given explanations about definition, causes, and how to overcome constipation, the benefits of abdominal massage, time for abdominal massage and abdominal massage steps using leaflets. In addition to leaflets, abdominal massage steps are also explained via video that is sent to the patient's mobile phone or family so they can perform abdominal massage at home. Leaflets and videos are used as learning media to make it easier to understand the learning materials provided. Explanation and steps of abdominal massage are always repeated each time intervention to the patient. Evaluation at the end of the intervention was performed to see how far the ability of the patient or family to perform abdominal massage independently. The duration of the abdominal massage lasts for 7-10 minutes per session, 2 hours after lunch. Prior to massage the abdomen, nurses' hands were covered by olive oil aromatherapy.

The abdomen was massaged with longitudinal and transverse strokes and circular movements in the direction of the colon. Abdominal massage consists of 8 steps that are adopted from Guy's and St Thomas' NHS Foundation (2014). The steps are 1) stroke upwards 3 times, 2) stroke towards the bottom of your tummy 3 times, 3) effleurage or circular stroking, 4) palmer kneading (one hand performs a circular movement, quickly followed by the other, moving down the stomach), 5) as step 4, but moving up the stomach, 6) repeat steps 4 and 5, 7) stroking, 8) hand vibrations over the belly button area.

Ethical Considerations : The protocol of this study was approved by Cardiovascular Ward in a Regional Hospital. All participants have given their informed consent before participating in this study. They were explained about the research objectives, intervention procedures, possible risks, and benefits obtained, and the researcher explained the confidentiality of the data of participants prior to data collection.

Results

Given that the measurements before and after the abdominal massage differed in number, we presented the data in the form of a graph to each patient.

Graph 1 shows that from day one to day 10 the value of CAS remains 5 (mild constipation) because the patient has not defecated, and the patient defecates after the eleventh day with a CAS value of 3 (mild constipation). As for the consistency of the stool before and after the intervention, the patient is still experiencing severe constipation with the value of BSC 1 until the eleventh day after defecation.

Graph 2 shows that on the first day the CAS value decreased, from 12 to 11 (severe constipation), and on the second day to 7 (mild constipation). As for the BSC value before the intervention is 1 (constipation weight) to 3 (normal consistency) after intervention on the second day.

Graph 3 shows that on the first day the CAS value decreased, from 14 to 13 (constipation weight), on the second day to 10 (constipation weight), and on the third day to 0 (not constipated). Whereas, the BSC value of 1 (constipation weight) rises to 3 (normal consistency) on the second day and 4 (normal consistency) on the third day until the fifth day after the intervention.

Graph 4 shows that on the first day the CAS value decreased from 8 to 7 (mild constipation), and on the second day decreased to 0 (not constipated) after the intervention. As for the BSC value of 1 (constipation weight) to 2 (mild constipation) on the first day and changed to 4 (normal consistency) on the second day after the intervention.

Graph 5 shows that on the first and second day the value of CAS was 1 (mild constipation), and after 3rd day intervention decreased to 0 (not constipated). As for the BSC value of 1 (constipation weight) changed to 2 (mild constipation) on the second day after the intervention, and changed to 4 (normal consistency) on the third day after the intervention.

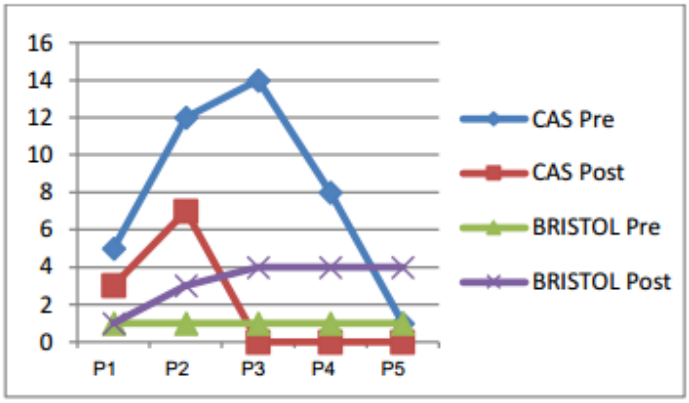

Figure 1

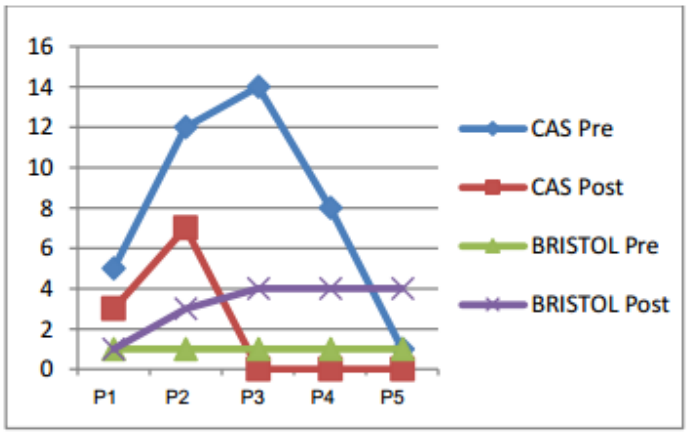

Figure 2

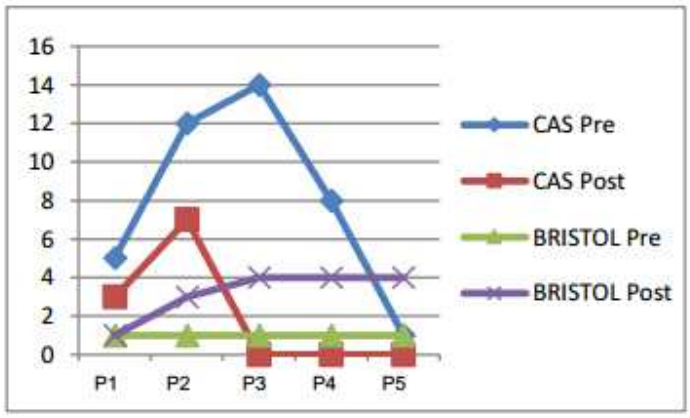

Figure 3

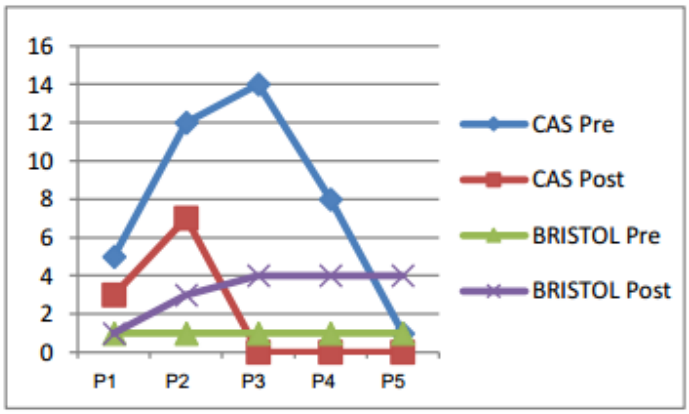

Figure 4

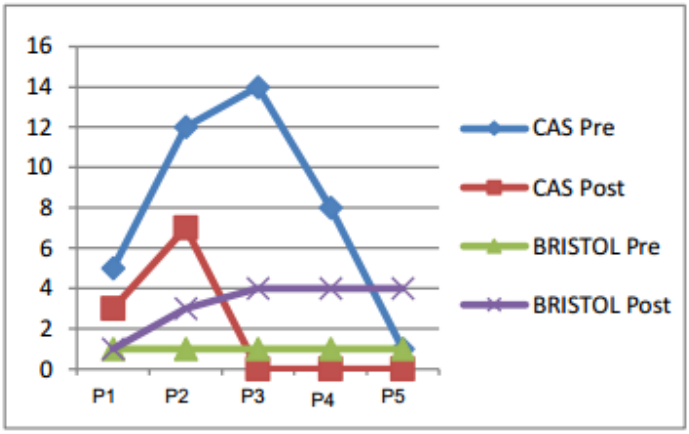

Figure 5

Discussion

Constipation is a problem in patients with heart failure due to lack of fluid intake, lack of mobility, drugs, loss of appetite (and less fiber intake), or lack of blood flow to the digestive tract (Continence Foundation of Australia, 2010). Patients with heart failure complain of not having defecation for 3-10 days, majority taking laxatives, and getting an injection or oral furosemide diuretic drug at a dosage of 40 mg / day. Some studies of the causes of constipation which is (Talley et. al 2003), diuretic drug consumption (5.6%), long-term laxative use cause harmful side effects including the increase of constipation and fecal impaction, and may be a risk factor leading to cancer colorectal (Sinclair, 2011). In addition, the use of laxatives continuously can lead to colon mucosal atrophy, thickening of muscles and fibrosis as well as colon perforation (Williams & Hopper, 2007). Therefore, one of the nursing orders that can alleviate the problem of constipation is abdominal massage.

It is proven that after doing abdominal massage for 2-3 days, the constipation level and the consistency of feces decreased. Supported by Seyyedrassoli, Azizi, & Goljarian (2016), that compared the use of foot reflexology and abdominal massage to overcome the severity of constipation that was experienced by orthopedic patients at the Shohada hospital in Northwest Azerbaijan-Iran. The result of abdominal massage group and reflexology group showed the decrease of constipation severity on day 3 to day 6. Turan & Astı, (2016) massage abdomen reduces constipation symptoms, decreases time interval between defecation, and improvement of quality of life. In addition, the incorporation of muscle exercises, abdominal massage and breathing exercises to overcome chronic functional of constipation, has been shown to effectively increase the frequency of defections after 6 weeks (Silva & Motta, 2013). The influence of abdominal massage with aromatherapy oils in elderly patients who are stroke and constipated in Korea. They found that constipation assessed with CAS had significant differences between the experimental group and the control group (Kim & Bae, 2013). The results of systematic review (Sinclair, 2011) about the effectiveness of abdominal massage to overcome the problem of chronic constipation showed that there are 6 articles that say there is significant decrease of constipation after being given abdominal massage.

In addition to be proven to overcome constipation, abdominal massage is also effective to provide comfort and reduced costs. The patients reported that their stomach felt more comfortable. Moreover, 3 patients said they wanted to be given abdominal massage every day. That is to say, the family said that this abdominal massage is very easy to do and will put it to practice at home. This result was supported by McClurg et al (2016) who reported that all participants felt comfortable and better after the abdominal massage for 6 weeks. The cost of expenses has reduced as seen from the price of laxadine syrup of 1 bottle 60 ml for Rp.32.000 was sold out within a week and olive oil 1 bottle 75 ml for Rp.16.000 which can be used for 2-3 weeks depending on the need. When olive oil is used in abdominal massage to smooth and moisturize the skin so that it can ease the abdominal massage. When summed, patients who consume laxadine per month cost Rp. 128,000 while olive oil Rp.32.000. This is in accordance with the research Lämås et.al (2010) Cost effectiveness for self-massage and professional massage decreased.

Conclusion: Abdominal massage is one of the nurse's self-care interventions that can be given to lower the level of constipation. Abdominal massage is considered effective in reducing constipation symptoms and does not cause hazardous side effects during therapy. Abdominal massage is easy to do, easy to learn, safe and the patient's family can apply it at home. Abdominal massage may be given to patients with heart failure as long as the patient is not in a period of pain or tightness. To investigate the effectiveness of abdominal massage further, it is necessary to conduct intervention study with control group and larger sample quantity so that the result can be generalized.

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