Depressive Symptom Screening as Part of Heart Failure Discharge Teaching

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Abstract

Chronic heart failure is a prevalent disease in the United States. It’s been shown that readmission rates for CHF are often related to non-compliance with self care. Since depression has been shown to decrease compliance with recommended care, it would be prudent to screen for depression before or at discharge. This proposed prospective observational cohort study will document observations of Beck Depression Inventory, European Heart Failure Self-Care Behavior Scale, patient compliance with daily weights and 30-day readmission rates of hospitalized heart failure patients enrolled from June 2009 to December 2009 who are ready for discharge teaching. The analytic design will indicate the strength and direction of association between depressive symptoms and patient compliance in recording post discharge daily weights. The self-care behavior and BDI scores data will be analyzed using SPSS for Windows software at baseline and at 30 days.
Depressive Symptom Screening as a Part of Heart Failure Discharge Teaching

Heart failure (HF) affects many Americans physically and mentally. Since depression has been shown to decrease compliance with recommended care, it would be prudent to screen for depression before or at discharge. This proposed prospective observational cohort study will document observations of hospitalized HF patients from June 2009 to December 2009 who are ready for discharge teaching. The analytic design will indicate the strength and direction of association between symptomatic depression and patient compliance in recording post discharge daily weights. This study proposes to document standardized observations of depression symptomology and adherence to heart failure discharge teaching manifested by patient performance of daily weight recording. It is believed that 30-day readmission rates for a primary diagnosis of HF can be positively affected by nursing interventions that address depressive symptoms.

Heart Failure and Depression as Co-Morbidities

Heart Failure

The heart failing to either fill or eject blood adequately characterizes HF. This results in fluid retention and low cardiac output. Classic symptoms caused by this disease include dyspnea, orthopnea, fatigue, occasional angina, exercise intolerance, and eventually inadequate profusion to vital organs. The diagnosis of HF is made based on history and physical, and echocardiogram. A classification or degree of impairment is then assigned based on the New York Heart Association Classification System, which is represented as four classes based on the presence or absence of specific physical symptoms (Farr & Spinelli, 2008).
Depression

The symptoms of HF affect a person not only physically, but also mentally. A cohort study of HF patients demonstrated that about 48% were identified as having depression (need source). These patients scored lower on quality of life measurements than their counterparts who were not depressed. In previous studies, the prevalence of outpatients with HF and depression ranged from 11% to 25%; depression in the general population ranges from 5% to 10%. Depression has been associated with medical noncompliance, a higher occurrence of smoking, and lower levels of social support. All of these have all been associated with worse outcomes in heart failure (O’Connor & Joynt, 2004).

When discharging patients with HF, appropriate education needs to be performed in order to optimize outcomes. Typical discharge instructions include dietary suggestions, monitoring daily weights, vaccination recommendations, activity instructions, and information on follow-up appointments (Koelling, Johnson, Cody, & Aaronson, 2005). Since depression has been shown to decrease compliance with recommended care, it would be prudent to screen for depression before or at discharge.

Significance

Chronic HF is a prevalent disease in the United States. In 2005, the estimated prevalence of HF in adults over the age of 20 was 5.3 million. The incidence increases with age. HF affects approximately 10 for every 1000 persons over the age of 65. At the age of 40 the lifetime risk of developing heart failure for both men and women is one in five (American Heart Association, 2008).
Typical Population

Primarily affecting the elderly HF is a chronic progressive disease with episodic exacerbations (Yancy & Strong, 2007). Forty-year-old men and women have a 1 in 5 lifetime risk of developing HF. In 2005, the estimated prevalence of HF in the United States was 5.3 million people with an incidence at age 65 years of 10 per 1000 (American Heart Association, 2008). Because the prevalence of chronic HF exceeds the incidence, a significant percentage of our acute HF patients have some understanding of their chronic HF diagnosis and experience with its symptoms prior to the current admission (Lynn & Adamson, 2003).

Costs of Heart Failure

The United States spends 23 billion dollars or 1.5% of our total health care dollars on HF each year (Lee, Chavez, Baker, & Luce, 2004). A majority of this cost occurs due to multiple hospitalizations. The Joint Commissions implemented core discharge education standards for HF (HF-1) in an effort to increase quality outcomes that include decreased hospitalization frequencies.

Self-care Burden in Heart Failure

Once the inpatient’s cardiopulmonary function stabilizes, the acute care nurse must quickly begin to incorporate selected indicators and outcomes for teaching, use setting appropriate cognitive learning strategies and minimize the distortion of teaching content to begin implementation of the Joint Commission’s process of care measure (HF-1) on heart failure education. The Joint Commission’s descriptive HF-1 priorities identify five key patient education areas for acute care nurses to accomplish prior to discharge (Ellis, 2005): 1) using medications properly, 2) limiting sodium and fluid intake, 3) daily weights, 4) rest
and exercise pacing and 5) symptom recognition. Generally, HF clinical pathways include these as a framework to assist the bedside nurse in identifying expected interventions, outcomes and timeframes.

*Depression Affects Learning Self-care*

Effective discharge teaching strategies in the acute care unit require constant vigilance and periodic patient reassessment to minimize information distortion related to the patient’s psychological (Middlekauff, et al., 1997) and environmental stressors (Englebardt & Nelson, 2002). Depression is common in acute heart failure and contributes significantly to increased rehospitalization (Jiang, et al., 2001). DeMatteo, Lepper and Croghan (2000) in a meta-analysis demonstrated the importance identifying depressed patients to improve self-care and medical treatment compliance.

**Methods**

*Design*

This prospective observational cohort study (Gordis, 2009) will document observations of a serial cohort of hospitalized HF patients from June 2009 to December 2009 who are ready for discharge teaching by physician order or nursing plan of care. The analytic design will indicate the strength and direction of association between depressive symptoms and patient compliance in recording post discharge daily weights. The study will be performed by a group of three nurse practitioners in partial fulfillment of their doctoral study requirements.

Selection bias will be minimized by identifying demographic and socioeconomic characteristics of all eligible inpatients (Gordis, 2009). Information bias will be minimized through the use of one experienced chart abstractor, one Psychiatric Nurse Practitioner
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interviewer, and one Nurse Practitioner as Discharge Educator. Surveillance bias will be limited by identical monitoring of exposed and control groups. Some information bias is unavoidable due to hospital record imprecision and incompleteness. Confounding factors of English as a second language, terminal illness, multiple uncontrolled psychiatric diseases, homelessness, deafness, wheelchair or bed-bound status and transportation access will be controlled through exclusion criteria.

Using a primary or secondary diagnosis of HF (American Heart Association, 2008), a serial inpatient population will be solicited for research study participation. All study participants will receive an interview that contains a Beck Depression Inventory screening (Moses, 2008) and referral to psychiatry for treatment if indicated prior to standardized discharge teaching (Koelling, Johnson, Cody, & Aaronson, 2005). 30-day patient compliance with completion of a daily weight log will be correlated with depressive symptoms and self-care scores at a 30-day follow up appointment with their regular primary care physician or cardiologist.

Program

The theoretical basis of this program rests at the intersection between nursing (Koelling, Johnson, Cody, & Aaronson, 2005), psychological (Simon & Von Korff, 2006), epidemiological (Gordis, 2009) and medical (Ho, Pinsky, Kannel, & Levy, 1993) theories of HF pathophysiology as a chronic disease and depression’s role as a co-morbidity. The interdisciplinary necessities of transitional care for heart failure patients require effective nursing discharge education on self-care activities unencumbered by symptomatic depression that support the medical treatment plan (Koelling, Johnson, Cody, & Aaronson, 2005). This convenience sample will make data collection relatively easy and inexpensive.
The inpatient population of Presbyterian Hospital Dallas represents a diverse socioeconomic group from a local 13 county catchment area (Stoltz, 2009). The catchment area fairly approximates current statewide population trends (Eschbach, 2008). Adult inpatients aged 18 years or older with HF will be identified using daily census reports. One experienced nurse practitioner medical record abstractor will perform a medical record review of inpatients with a primary or secondary diagnosis of heart failure using a patient registry report. Charge nurse and attending physician consultations will be performed by one Psychiatric Nurse Practitioner to identify patients who meet study inclusion criteria.

Upon successful prequalification, the cardiologist will be approached for permission to perform informed consent with the subject. With the cardiologist’s assent, informed consent will be obtained. The Psychiatric Nurse Practitioner will perform informed consent, baseline Beck Depression Inventory screenings and 30-day follow-up screenings. Discharge education according to the Joint Commission’s HF-1 standards (Joint Commission on Accreditation of Healthcare Organizations, 2005) will be performed according to the standard hospital procedures by the discharge education Nurse Practitioner. All participants will receive standard discharge teaching on self-care behaviors related to the management of HF.

**Timeline**

The nurse practitioners will complete the required “Guidelines for Human Subject Research” continuing education course on the Texas Health Resources intranet and review the Texas Health Research Manual in May 2009. The principle investigator will obtain an electronic institutional review board (IRB) user name and password in April 2009. The
electronic IRB with study protocol, consent and assent sheets and recruitment documents will be submitted to Presbyterian Hospital Dallas’ IRB board for approval in May 2009. Once approved, a serial sample of New York Heart Association class I through III heart failure (Ho, Pinsky, Kannel, & Levy, 1993) inpatients at PHD’s HF Unit will be solicited based on established inclusion and exclusion criteria starting in June 2009. Patient recruitment will continue until 30 participants have been consented or December 2009, whichever occurs first.

**Evaluation**

**Screening method**

Thirty patients with documented HF will be enrolled in the study and screened. Participants will be screened for depressive symptoms using the Beck Depression Inventory (BDI) prior to discharge teaching. This will measure the occurrence of depressive symptoms. The BDI is a 21 item self-report questionnaire covering symptoms, emotions, and behavioral changes. Scores range from 0 to 63 based on a 4 point intensity scale. Higher scores indicate more severe depressive symptoms. Participants with scores of 17 or above 17 will be referred for psychiatric evaluation and excluded from the study.

The European Heart Failure Self-Care Behavior Scale in abbreviated form will be administered to all participants to measure baseline self-care behaviors prior to discharge (Caldwell, Peters, & Dracup, 2005). This scale is a self-administered 4 item yes/no questionnaire focusing on fluid weight management. The scores range from 0 to 4 with higher scores indicating better self-care behaviors. Mean scores from both groups will be compared for differences at baseline.

**Process Evaluation**
At the 30-day follow-up visit the European Heart Failure Self-Care Behavior scale and Beck Depression Inventory will be administered to all participants. Data on the Beck Depression Inventory, European Self-Care Behavior Scale, daily weight log and 30-day readmission rates will be analyzed. Data will be analyzed using SPSS for Windows software at baseline and at 30 days. It is expected that a significant correlation will be demonstrated between depressive symptoms and daily weight log compliance. The study will be considered to have a positive effect if there is a relative risk greater than one. (Gordis, 2009). A decrease in Beck Depression Index scores combined with improved self-care behaviors would further corroborate the assumption that depressive symptoms are a barrier to compliance.

Resource Budget

This study is projected to take no longer than 6 months. During this time we need several resources, personnel and methods available for our purposes. We will need identification badges that allow us to visit the Heart Failure Unit. To facilitate patient recruitment, we will provide a video spot advertisement for broadcast on the internal Texas Resources Research Institute television system, utilize existing patient email communication and personal visits to patient rooms. Please provide a copy of your standard discharge teaching materials for our records.

Starting June 1, 2009, we will need a daily census containing Personal Health Information of Heart Failure unit admits with associated attending and cardiologist physician names to be used for study recruitment. The assistance of the unit manager and/or clinical nurse specialist to identify potential study participants and obtain access to the active patient chart of enrolled study participants will be necessary. We need to have
access to an active workstation with the ability to back up data to a secure portable device. Access to a telephone, copy machine and fax machine may also be necessary.

Summary

The purpose of this prospective observational study is to document standardized observations of depressive symptoms and adherence to HF discharge teaching manifested by patient performance of daily weight recording. It has been found that nearly half of patients with HF also have clinical depression as a co-morbidity. It has also been shown that people experiencing symptoms of depression are less likely to adhere to medical recommendations of care (O’Connor & Joynt, 2004). In this local study, we will identify a group of HF patients, screen for depressive symptoms, and correlate depressive symptoms with the performance of daily weights with the expectation that depressive symptoms have a significant impact on self-care and therefore 30-day readmission rates. We hope to prove that HF patients with depressive symptoms have an increased risk of early hospital readmission and that screening for depressive symptoms needs to be a part of the routine discharge evaluation in order to promote the best outcomes for patients with heart failure.
References


