

EVALUATING HEART FAILURE

Evaluating Heart Failure Readmissions

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Abstract

Problem: In heart failure patients that were readmitted within 30 days of discharge, does identifying demographic and individual characteristics provide data that can enhance discharge education and planning for future prevention of readmissions? **Intervention:** Hospital readmissions related to heart failure greatly affect patients' disease prognosis, health maintenance, and overall quality of life. Frequent readmissions to the hospital can increase morbidity and mortality significantly. To identify common characteristics among readmitted heart failure patients a retrospective chart review was completed. **Measures:** Patients readmitted to the hospital within 30 days with a primary diagnosis of heart failure were assessed. Patient's age, gender, zip code, and readmission risk score were analyzed. **Results:** Sixty-nine patients were readmitted to the hospital within 30 days with a primary diagnosis of heart failure. Females aged 60 to 69 that live in zip code 64119 were most frequently readmitted to the hospital. The average readmission risk score was 4 with the following risk factors as most prevalent among the study population: problems with medications, poor health literacy, and prior hospitalizations. **Conclusions:** The data provides key information allowing staff nurses to quickly identify heart failure patients who are most at-risk for being readmitted within 30-days of discharge and provide interventions aimed to mitigate this. The participating facility can use this information to develop discharge instructions or materials to specifically address at-risk populations.

Keywords: Heart failure, characteristics, 30-day hospital readmissions

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Evaluating Heart Failure Readmissions

Heart failure is a cardiovascular diagnosis affecting millions of individuals every year and must be managed closely to avoid potential negative outcomes (Breathett et al., 2017). When admitted to the hospital, heart failure patient's risk of poor health maintenance, morbidity, and even mortality is greatly increased upon discharge (Hart & Nutt, 2020; Lee et al., 2020; Zhang et al., 2020). Because of this, following closely with heart failure patients after discharge is essential in avoiding adverse outcomes. Due to the potential negative health consequences, it is crucial to identify common characteristics and variables among heart failure to patients to quickly identify those at-risk for readmissions to promote positive patient outcomes.

Overview

Problem Description

Substantial research has shown the importance a follow-up appointment within 7 days of hospital discharge has on hospital readmissions, however, little has been done on assessing barriers that may impact patient attendance. In addition to frequent readmissions, failure to attend a follow-up appointment after being discharged from the hospital has been shown to lead to increased morbidity, poor self-care, increased medical costs, and decreased knowledge regarding heart failure (Hart & Nutt, 2020; Lee et al., 2020).

Literature has identified potential barriers regarding missed follow-up appointments and characteristics commonly associated with 30-day readmissions. Breathett et al. (2017) found that patients report the main reasons for not attending follow-up appointments was due to lack of personal transportation, appointments being too far from home, no reminder message, and price of copay. Additionally, Anzio et al. (2022) found that patient's gender, age, race, and comorbidities were characteristics that tended to affect frequency of hospital admissions in heart failure patients.

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In heart failure patients that were readmitted within 30 days of discharge, does identifying demographic and individual characteristics provide data that can enhance discharge education and plan for future prevention of readmissions?

The intended outcome of this project was to identify key demographics of heart failure patients who were readmitted to the hospital 30 days after discharge.

Available Knowledge

Problem

Heart failure affects millions of individuals every year and remains a prominent cause of overall hospitalizations, health costs, early hospital readmissions, and poor quality of life in individuals with whom it affects (Breathett et al., 2017; Hart & Nutt, 2020; Lee et al., 2020; Zhang et al., 2020). Due to the impact this cardiovascular diagnosis has on individuals and overall health systems, it is essential to ensure follow-ups with heart failure patients are completed within seven days to prevent adverse outcomes and frequent hospital readmissions. Research has been conducted on the negative aspects of failing to attend follow-up appointment, however, to provide new information to this topic, this paper will aim to establish the characteristics that readmitted heart failure patients possess.

Review of Literature

Research has been published on the importance of following up with patients within 7 days of being discharged from the hospital after a heart failure exacerbation. It has been found that prior to discharge, patients may lack the necessary education and resources needed to appropriately self-manage their disease at home leading to frequent readmissions (Zhang et al., 2020). Frequent readmissions not only have the potential to lead to poor patient outcomes, but it also financially penalizes hospitals, particularly with Medicare. Readmissions may give the impression that patients were discharged too early prior to stabilizing their disease making it costly for healthcare facilities (Hart & Nutt, 2020; Lee et al., 2020). To decrease readmissions and promote education and self-care

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regarding heart failure, research shows following up with patients within 7 days of discharge can improve both of these variables (Breathett et al., 2017; Lee et al., 2020; Matsukawa et al., 2021). When following up with a physician within a week after discharge, patients are allowed to ask questions regarding diet, medications, and overall disease prognosis. Unfortunately, not all patients attend the follow-up appointment due to individualized barriers that may prohibit attendance.

Target Population

Though well-studied, the effect follow-up appointments have for heart failure patients and healthcare systems does not change the barriers those same patients face surrounding accessibility of the appointment. Further research is needed to understand the reasons behind missing the follow-up appointment. Breathett et al., (2017) found that frequent readmissions and poor follow-up rates were significantly higher in individuals among lower socioeconomic groups. Additionally, they found that the main reasons for these patients not attending follow-up appointments was due to lack of personal transportation, appointments being too far from home, no reminder message, and price of copay (Breathett et al., 2017). Furthermore, Lee et al., (2020) found that 92% of patients followed-up via telephone compared to 79% that attending in-person follow-up appointments. They found that patients were less likely to attend in-person due to lack of social support, caregiver fatigue, lack of transportations, and underlying illness (Lee et al., 2020).

This information can greatly influence the education provided to patients prior to discharge. Barriers can potentially be addressed to ensure compliance and attendance to follow-up appointments by surveying patients to identify potential barriers, and then providing resources to address patient concern. In evaluating and identifying specific characteristics in readmitted heart failure patients, individualized planning and assistance can be provided to patients to ensure that they are safe for discharge. The overall goal for identifying key characteristics can help provide necessary education, self-

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care techniques, and confidence in caring for the disease prior to hospital discharge to decrease hospital readmissions.

Rationale

The management of heart failure is very complex and challenging due to the multiple factors that affect the disease. Because of the difficulty of the different components related to heart failure and, often times, associated comorbidities, it is necessary to implement a framework to manage the disease appropriately. The ARISE-HR framework helps establish a knowledge foundation, can help guide treatment within clinical practice, and can support the need for a follow-up within 7 days of hospital discharge to prevent readmissions. Stewart et al. (2016) described the ARISE-HF framework and the step-wise approach to treating heart failure. The acronym ARISE stands for acknowledge multimorbidity that is associated with poor outcomes, routinely profile all patients hospitalized with heart failure, identify individualized plan of care, support multidisciplinary heart failure management, and evaluate health outcomes beyond discharge from the hospital (Stewart et al., 2016).

Initially, the ARISE-HF framework helped to guide the intervention of surveying patients prior to discharge regarding potential barriers of attending a follow-up appointment as well as implementing solutions to those barriers. Specifically, the focus on assessing the individual characteristics of one's disease, specialized and collaborative treatment, and ability to attend a follow-up appointment. As the project was changed to meet the needs of the organization, the framework established by Stewart et al. (2016) was utilized to help guide the intervention of this project and provided an overview to ensure the best, patient-centered care to heart failure patients. In reviewing demographic information in recently discharged heart failure patients, the information can help to identify patient populations more at risk for not completing a follow-up and being readmitted to the hospital. By identifying at-risk patient populations, discharges can be adapted to specifically address barriers to follow up in those groups.

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Purpose

The initial purpose of this project was to implement an intervention to identify potential barriers in attending a follow-up appointment and to reduce the number of hospital readmissions in heart failure patients. After changes from the participating project site, the project was adapted to identify possible at-risk patient populations for readmission by assessing key demographics of those readmitted heart failure patients.

Methods

Context

Follow-up in recently discharged heart failure patients remains valuable in the health and well-being of those individuals, thus, promoting convenient and effective monitoring via follow-up appointments is necessary and hopefully preventing future readmissions. To evaluate heart failure patients who were readmitted within 30 days of discharge and the demographic identifiers they possess, a capstone project was implemented within a fully accredited, large, urban, midwestern hospital. The hospital serves patients admitted with acute heart failure exacerbations as well as post-operation open heart surgery. The hospital is staffed with Registered Nurses, Patient Care Technicians, and Certified Nursing Assistants. The overall goal was to identify common demographic identifiers among patients readmitted with heart failure within 30-days of their previous discharge. Determining potential at-risk patient populations can be beneficial in quickly identifying patients at-risk for readmissions and can help to improve educating patients regarding their disease and medications, monitor their heart failure and medications for optimal cardiac functioning, and to promote self-care in managing the disease at home. All of this was aimed to reduce emergency room visits, hospital admissions, and hospital readmissions. Patients that were included in the project consist of adults that are admitted with a diagnosis of heart failure within 30 days of their previous discharge. The population

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demographics of the facility consist of a majority being Caucasian males with common co-morbidities consisting of coronary artery disease, hypertension, hyperlipidemia, and diabetes mellitus.

Intervention(s)

The intervention initially prepared was a patient survey to identify potential patient barriers in attending follow up appointments. The implementation facility requested changes be made to the project to better meet the needs of the organization. The updated intervention was the identification of demographics consistent in readmitted heart failure patients between June 2021 and January 2022. Readmissions were reviewed for patient gender, age, zip code, and readmission risk score based on criteria set by the implementation facility.

Study of the Intervention(s)

To determine the common characteristics among readmitted heart failure patients, a retrospective chart review was completed. Assisted by the implementation facility, patient demographics for recently discharged heart failure patients who were readmitted within 30 days of discharge were provided to the project facilitator. The collection of data was obtained from the retrospective chart review and provided to the project facilitator.

Key demographics used to identify at-risk patient populations included gender, age, zip code, and readmission score. Additionally, the facility provided a readmission score. This score was determined by the following historical factors listed in their medical chart: problem with medications, psychological diagnosis, principle diagnosis, physical limitations, poor health literacy, poor social support, polypharmacy, prior hospitalization, and palliative care. For each historical factor, the patient was given a score of 1 and the total was determined to be the readmission risk score.

Measures

To appropriately evaluate heart failure patients that were readmitted within 30 days of discharge, a retrospective chart review was completed. The chart review first identified patients that

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were discharged and readmitted with a primary diagnosis of heart failure. It then provided data including the patient's age, gender, residential zip code, medical history, cardiac-specific laboratory values, length of stay, and discharge disposition. The information obtained from the retrospective chart review was then analyzed to identify common variables and characteristics among the readmitted heart failure patients.

Analysis

Microsoft Excel was used to analyze the collected data. The de-identified patient data was provided by the implementation facility and reviewed by the project facilitator. Descriptive statistics were performed on the collected data from the retrospective chart review to summarize and systematize the data and identify variables and characteristics that were found common among the readmitted heart failure patients. In order to determine what readmitted heart failure patients were most at-risk for readmission, the project facilitator and statistician reviewed the demographic data and readmission risk score to identify the specific characteristics most often seen in the data set. The analysis of the data provided valuable information regarding heart failure patients that are most often readmitted to the hospital and the characteristics they possess.

Ethical Considerations

Prior to the implementation and data collection of this project, the primary project facilitator and lead faculty member both completed the Social Collaborative Institutional Training Initiative (CITI) training in full to ensure complete understanding of the process of data collection and storage, as well as the use of research conducted on human participants. Additionally, the project proposal was reviewed by the Institutional Review Board (IRB) at Nebraska Methodist College as well as by the implementation site's IRB. Prior to the implementation of the initial project, the implementation facility requested changes to the project. A request for modification was submitted to Nebraska Methodist College IRB and approved.

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A request was made for 75 randomly selected medical records. The records were reviewed for appropriateness and completion of inclusion criteria until a study population of 69 was achieved. Once the retrospective chart review was completed, patient identifiers were removed, the study file was then analyzed and saved on a password protected computer. Patient's health information was kept confidential, and the Health Insurance Portability and Accountability Act (HIPAA) was honored at all times. The project facilitator is employed within the clinical facility that the project was implemented in, which was reviewed and determined not to be a conflict of interest for this project.

Results

A retrospective chart review was completed to identify individuals that were readmitted to the hospital within 30 days of their last discharge with a primary diagnosis of heart failure. A study population of 69 individuals was included in the data set. The patient's sex, age, and zip code were also reviewed to help identify trends in hospital readmissions. A readmission risk score was calculated by the implementation facility and included in the data provided.

Utilizing the data from the chart review, descriptive statistics revealed a total of 69 patients, 28 being men and 41 being women. Patients resided in 22 different zip codes and ranged in age from 39 to 95. Zip code 64118 included the most readmissions representing 19% of the study population. Patients age 60 and older represented 84% of the study population. No patients under the age 30 were in the study population. The average readmission risk score was 4, with the lowest individual score of 1 and the highest being 7. The readmission risk score average for men of 4.10 was slightly higher than that of the women at 3.95. Problems with medications, poor health literacy, and prior hospitalizations accounted for the most risk factors among the study population. By retrospectively reviewing charts of patients readmitted to the hospital for heart failure, it was determined women, age 60-70, from zip code 64119 were most frequently readmitted.

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Discussion

Summary

The results of this study identify key characteristics in heart failure patients that are most frequently readmitted to the hospital. Review of factors, including the readmission risk score and specific demographic data can provide key indicators on patients who may be more at risk to be readmitted and can provide insight as to possible prevention. This can help guide direct nursing care, discharge education, and evaluation of follow-up care to prevent frequent hospitalizations and readmissions. The findings suggest there are key indicators that can be identified to identify heart failure patients most at-risk for readmission. Important strengths of this study included the adaptability of the research design, results that potentiate further collaboration and studies, and the cost effectiveness of a retrospective chart review.

Interpretation

The initial intervention and intended outcomes could not be completed due to the pivot required in the implementation of the study. However, in collaboration with the implementation facility, the project facilitator was able to develop and implement a new project that closely aligned with the previous intervention and outcome. Prevention of readmission in heart failure patients was the leading driver of the project from the beginning. The implemented project provided key indicators to the project facilitator and implementation facility on what patients are most at-risk for readmission which will be valuable in future discharge and preventative interventions. Ultimately, the information gained from this project can lead to quality improvement projects within the implementation facility to prevent readmission in heart failure patients tailored to those most at-risk.

Limitations

Limitations for this study and data include the implementation site altering the overall methods of the study causing a shift in desired outcomes and in the projected timeline. Other limitations for this

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study consist of potential selection bias due to the ability to only review charts within one local facility, leading to a small sample size. This limitation could decrease the overall generalizability of the results.

Conclusions

The revised standards for quality improvement reporting excellence (SQUIRE 2.0) was used as a framework for reporting this project. Frequent readmissions to the hospital in heart failure patients has been shown to lead to increased morbidity, poor self-care, increased medical costs, and decreased knowledge regarding the disease. Although this study was completed differently than intended, the information gained remains valuable. Identifying who is most at-risk for hospital readmissions is important to help guide nursing care and education prior to discharge. Understanding this information can provide key information on how practice can be changed at the bedside. When a patient is admitted with heart failure, and fits the criteria of being female, aged 60 to 69, and from the zip code 64119, a particular nursing education plan could be initiated in order to provide extra, and more in-depth learning material to the patient. Additionally, those individuals could be further surveyed to help identify potential barriers they have in managing their heart failure that may be leading to more hospitalizations. The information gained in this study can help identify patients most at-risk to readmissions, and can serve as a foundation for further evaluation among this population and the reasons for frequent readmissions.

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