J Clin Exp Cardiolog 2017, 8:7 (Suppl)
DOI: 10.4172/2155-9880-C1-075

36TH CARDIOVASCULAR NURSING & NURSE PRACTITIONERS MEETING

Factors associated with heart failure readmissions from skilled nursing facilities

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Background: Despite guideline-driven pharmacological therapies and careful transitional care, the rates of preventable hospital re-admission of heart failure patients and associated costs remain unacceptably high in the SNF populations. Transfer to SNF is one strategy to limit hospitalizations. As such, 25% of patients are still symptomatic at time of discharge.

Purpose: The objective of this study is to identify patient factors affecting re-admissions of HF patients residing in SNF within 30-days.

Methods: A retrospective electronic chart review was completed on patients >65 years with HF who were admitted into large medical center between 2012 and 2014. Descriptive statistics and univariate analyses using the chi-square test or Fisher's exact test for categorical variables and the Mann-Whitney test for continuous data was used to compare patients readmitted within 30 days vs. those who were not readmitted within 30 days. Significant factors associated with readmission in the univariate analysis ($p<0.10$) were included for a multivariate logistic regression model. A receiver operating characteristic (ROC) curve was constructed to look at the final model's ability to predict the outcome. A numerical measure of the accuracy of the model was obtained from the area under the curve (AUC), where an area of 1.0 signifies near perfect accuracy. The analysis of LOS was accomplished by applying standard methods of survival analysis, i.e., computing the Kaplan-Meier product limit curves, where the data were stratified by readmission within 30 days (Yes vs. No). No data were considered 'censored'. The groups were compared using the log-rank test. The median rates for each group were obtained from the Kaplan-Meier/Product-Limit Estimates and their corresponding 95% confidence intervals were computed, using Greenwood's formula to calculate the standard error. Unless otherwise specified, a result was considered statistically significant at the $p<0.05$ level of significance.

Results: Fifteen variables: creatinine, weight difference, CKD, Angina, Arrhythmia, VHD, Tobacco, ADL, independent in bathing, independent in the toilet, S3 Heart sounds present, HJR, AF, Nitrates, and Hydralazine, were identified for the multivariate logistic regression as potential risk factors associated with "readmission within 30 days". Based on 23 readmissions within 30 days, our final model included only 2 predictor variables. Creatinine and ADLs were included in the final model as this subset of predictors was found to be the best for prediction of "readmission within 30 days". Creatinine ($p<0.0087$) and ADLs ($p<0.0077$) were both significantly associated with readmission within 30 days in the final logistic regression model. Every 1-unit increase in creatinine is associated with an 87% increase in the odds of being readmitted within 30 days (OR = 1.87). Those patients who require assistance with ADLs are over 9 times more likely to be readmitted within 30 days (OR=9.25) as compared to patients who are independent.

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