**Abstract**

***Background*** Renal dysfunction serves is a complication of heart failure through multiple mechanisms. Studies have shown that the serum level of creatinine, a substance readily filtered out by healthy kidneys, acts as an indicator of kidney function could help predict mortality for patients of heart failure. However, the potential effect modifications by other demographic and biomarkers were not clearly assessed. This project hence sought to investigate the association between serum creatinine level and mortality rates among patients with heart failures.

***Methods*** A dataset consisting of 299 patients of heart failure enrolled from April 2015 to December 2015 was studied. In the main analysis, serum creatinine level was first treated as a continuous variable then classified into two different categories (normal vs. abnormal) with multivariable-adjusted Cox proportional hazards models used to estimate hazard ratios (HR) and 95% confidence intervals (CI). Linear regression, logistic regression, and Poisson regression were performed as exploratory analysis. Lasso regression was utilized to help determine the optimal covariate sets.

***Results***

***Conclusion***

**Keywords**: Cardiovascular disease Serum creatinine; mortality for heart failure; model selection.