In-Hospital Mortality Predictors of Heart Failure Patients in Rajavithi Hospital

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Background: *Congestive heart failure is a common disease in hospitalized patients with frequent readmissions often leading to death. The incidence of heart failure increases with age and entails high medical costs. Previous studies have identified several predictors of mortality in heart failure patients, but there have been few studies of this problem in Thailand.*
Objective: *The present study evaluated predictors of in-hospital mortality in heart failure patients at Rajavithi Hospital. Median hospital length of stay and factors that affected duration of hospitalisation in heart failure patients were evaluated as secondary endpoints.*
Material and Method: *This was a retrospective study performed of heart failure patients admitted between 2009 and 2015. Subjects were categorized into death and non-death groups, and baseline characteristics and laboratory data were collected and analyzed in order to identify mortality predictors.*
Results: *A total of 208 patients with congestive heart failure (CHF) were enrolled from the medical records of Rajavithi Hospital. Of these, 68 patients died and 140 patients survived to discharge. The mean age ± SD was 66.28±13.30 years and 55.3% were female. The mean BMI ± SD was 24.32±6.80 kg/m^2 and the median length of stay was 7.50 (IQR 4 to 15) days. History of smoking and underlying disease in the two groups did not differ significantly. Age, LVEF, use of spironolactone, use of digoxin, SBP, serum BUN and albumin were significantly different. However, multivariate analysis found that only age, SBP, and serum albumin were associated with mortality with odds ratios of (95% CI) = 1.034 (1.002 to 1.067), 0.983 (0.967 to 0.998) and 0.353 (0.169 to 0.740) respectively. Factors influencing length of hospital stay were female gender, NYHA class IV and serum creatinine levels with odds ratios of (95% CI) = 1.802 (1.004 to 3.234), 8.601 (2.258 to 32.765) and 1.307 (1.023 to 1.670) respectively.*
Conclusion: *Age, SBP and serum albumin were predictors of in-hospital mortality from heart failure. Median duration of hospitalization was 7.5 days and factors that influenced length of stay were female gender, NYHA class IV, and serum creatinine levels.*

Keywords: *Predictors, Congestive heart failure, Mortality, In-patients*

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Congestive heart failure is a major public health problem worldwide, including in Thailand, and over 20 million patients globally are affected by it. In the US, the incidence of new heart failure cases is over 650,000 cases per year and susceptibility increases with age[1-4]. Rates of morbidity and mortality due to heart failure are very high with a 5-year survival of only 50%[5]. The 30-day re-admission rate of patients can be up to 25%[6], and the average length of hospital stay is 4.9 days[7]. In Thailand, heart disease has a high mortality rate and long hospitalization duration[8]. Guidelines for heart failure treatment recommend a composite of standard treatment and novel therapy (such as implantable cardioverter defibrillator, cardiac resynchronized therapy, and heart transplant). The cost of medical care in this patient group is very high and increases every year. The major precipitating causes of heart failure are uncontrolled hypertension and acute coronary syndrome, but there are many factors which influence its mortality rate such as age, male gender, body mass index, New York Heart Association classification, smoking, low left ventricular ejection fraction, diabetes mellitus, chronic obstructive lung disease, delay in diagnosis heart failure, low systolic blood pressure, absence of beta-blocker treatment, absence of angiotensin converting enzyme inhibitors/ angiotensin receptor blockers treatment and serum creatinine levels[9]. There have been few studies of this

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problem in Thailand.

Material and Method

A retrospective case control study was performed of in-patient medical record forms of patients who were admitted with diagnosis of heart failure (using ICD-10 code I50.0)[10]. Baseline characteristics and lab investigation results were collected.

The study was approved by the ethics committee of Rajavithi Hospital No. 159/2558.

In-patient medical record forms were reviewed of patients who were admitted with diagnosis of heart failure between 1st January 2009 and 31st December 2015.

Patients with heart failure from any cause (such as ischemic heart disease, dilated cardiomyopathy, and myocarditis) were eligible for inclusion in the present study if they were at least 18 years of age. Patients were excluded if they had the following conditions: pregnancy, malignancy or severe immunocompromised host such as human immunodeficiency virus (HIV) infection, neutropenia or post-organ transplantation.

Baseline characteristics including age, sex, body mass index, underlying disease, New York Heart Association (NYHA) functional classification, heart failure duration, left ventricular ejection fraction (LVEF), physical examination, underlying diseases and medications were recorded.

Basic lab chemistry including troponin was collected, and hospital length of stay and mortality were recorded. Heart failure was diagnosed in accordance with the algorithm in the ESC guideline 2012[10].

The primary endpoint was to determine the predictors of in-hospital mortality in patients with heart failure, and the secondary objectives were to establish the median length of stay in patients with heart failure and to identify the factors that affected duration of hospitalisation.

Statistical analysis

The estimated sample size was based on those of previous studies. Using 2-sided type I error of 5% and 90% power, a sample size ratio of death:non-death = 1: 2 were recruited and at least 67 patients were required in the death group.

Baseline characteristics were described using SPSS program, version 17, as number (percentage), median (range) and mean $\pm$ standard deviation (SD). Chi-square/Fisher's exact test was employed to compare proportions between the study groups, 2-sample t-test was used to compare the means of the two groups, and Mann Whitney U test was used for non-nominal distributions with significance set at a *p*-value <0.05.

Results

A total of 208 patients who were admitted with diagnosis of heart failure between January 1st 2009 and December 31st 2015 were selected for analysis. There were 68 deaths during the period, and 140 patients survived to discharge. Baseline characteristics (Table 1) showed that the patients were mainly female with a mean age $\pm$ SD of 66.28$\pm$13.30 years. The common underlying diseases were diabetes mellitus, hypertension, dyslipidemia and coronary artery disease, and the majority of patients were in NYHA class III to IV. The medications prescribed included diuretics (64.7%), calcium channel blockers (CCBs) (38.6%), angiotensin-converting enzyme inhibitors (ACEIs)/angiotensin receptor blockers (ARBs) (36.2%), and beta-blockers (32.9%).

The group of patients that died were significantly older and had lower LVEF (LVEF <40%) than those that survived. The use of spironolactone and digoxin were significantly higher in the group of patients that died (29.4% vs. 12.9%, *p*-value = 0.004 in spironolactone use; 22.1% vs. 7.2%, *p*-value = 0.002 in digoxin use). Mean levels of systolic blood pressure (SBP) were significantly lower in the death group than in the non-death group (122.15$\pm$27.07 vs. 141.17$\pm$31.30 mmHg, *p*-value <0.001), as were levels of diastolic blood pressure (DBP) (72.96$\pm$15.77 vs. 81.49$\pm$17.09 mmHg, *p*-value = 0.001), but there was no difference in other physical findings. Higher levels of blood urea nitrogen (BUN) and lower levels of serum albumin were found in the death group, but levels of serum creatinine, serum sodium and hemoglobin were not significantly different. Troponin levels were measured in only 177 of the 208 patients, were mostly not elevated, and did not differ between the two groups, as shown in Table 2.

Multivariate linear regression showed that age, SBP and serum albumin levels were significantly different in the two groups, with adjusted hazard ratios of 1.034 (1.002 to 1.067, *p*-value = 0.037), 0.983 (0.967 to 0.998, *p*-value = 0.029), and 0.353 (0.169 to 0.740, *p*-value = 0.006) respectively. The median length of hospital stay was 7.5 days, and it was found that subjects who were female, had chronic kidney disease, or had higher NYHA classification were significantly correlated with a longer length of hospital stay, and these patients with longer duration of hospitalization

Table 1. Baseline characteristics in death and non-death groups

Characteristic	Total (n = 208)	Death (n = 68)	Alive (n = 140)	*p*-value
Age (years)	66.28±13.30	69.37±13.73	64.79±12.88	0.019*
Gender				0.676
Male	93 (44.7)	29 (42.6)	64 (45.7)	
Female	115 (55.3)	39 (57.4)	76 (54.3)	
BMI (kg/m^2)	24.32±6.80	23.73±5.54	24.45±7.08	0.617
Smoking				0.541
Never smoked	126 (67.4)	44 (68.8)	82 (66.7)	
Stopped smoking	40 (21.4)	15 (23.5)	25 (20.3)	
Smoke	21 (11.2)	5 (7.8)	16 (13.0)	
Underlying disease				
Diabetes mellitus	99 (47.6)	30 (44.1)	69 (49.3)	0.484
Hypertension	157 (75.5)	53 (77.9)	104 (74.3)	0.565
Dyslipidemia	96 (46.2)	28 (41.2)	68 (48.6)	0.316
Chronic kidney disease	74 (35.6)	26 (38.2)	48 (34.3)	0.577
COPD	17 (8.2)	9 (13.2)	8 (5.7)	0.063
Coronary artery disease	92 (44.3)	29 (42.6)	63 (45)	0.749
Stroke	22 (10.6)	5 (7.4)	17 (12.1)	0.292
Dilated cardiomyopathy	33 (15.9)	13 (19.1)	20 (14.3)	0.371
Atrial fibrillation	58 (27.9)	20 (29.4)	38 (27.1)	0.732
NYHA class				0.612
Class II	17 (8.2)	6 (8.8)	11 (7.9)	
Class III	102 (49.0)	30 (44.1)	72 (51.4)	
Class IV	89 (42.8)	32 (47.1)	57 (40.7)	
HF duration (n = 184)				0.065
<18 months	127 (69.0)	38 (60.3)	89 (73.6)	
>18 months	57 (31.0)	25 (39.7)	32 (26.4)	
LVEF (n = 175)				0.013*
<40%	70 (40.0)	31 (55.4)	39 (32.8)	
40-50%	27 (15.4)	8 (14.3)	19 (16.0)	
>50%	78 (44.6)	17 (30.4)	61 (51.3)	
Hospital stay (days)				
Median (IQR)	7.50 (4-15)	7.0 (3-14)	8 (5-15)	0.220

Values are presented as n (%), mean ± SD, * = Significant at *p*-value <0.05
COPD = Chronic Obstructive Pulmonary Disease; NYHA = New York Heart Association; HF = Heart Failure; LVEF = Left Ventricular Ejection Fraction; IQR = Inter-Quadrant Range; SD = Standard deviation

had higher serum creatinine levels; however, there was no significant difference in other blood chemistry tests, as shown in Table 3. Multivariate linear regression showed that only female sex, NYHA class IV and serum creatinine levels were significantly different in the two groups, with adjusted hazard ratios of 1.802 (1.004 to 3.234, *p*-value = 0.049), 8.601 (2.258 to 32.765, *p*-value = 0.002), and 1.307 (1.023 to 1.670, *p*-value = 0.032) respectively.

Discussion

Previous studies[11-13] have shown that many variables are correlated with rates of mortality from heart failure. One meta-analysis[9] of 39,372 patients showed that there were 13 variables correlated with mortality in heart failure: age; male sex; body mass index; NYHA classification; smoking; low LVEF; diabetes mellitus; chronic obstructive lung disease; delay in diagnosis of heart failure; low systolic blood pressure; absence of beta-blocker treatment; absence of ACEIs/ARBs treatment; and serum creatinine levels. In this study, older age and low SBP were found to be correlated with a higher mortality rate in heart failure, and this is similar to the findings of previous studies. Older patients had a greater number of underlying diseases, and when developing heart failure, they patients would be difficult

Table 2. Baseline blood chemistry at admission in death and non-death groups

Characteristic	Total (n = 208)	Death (n = 68)	Alive (n = 140)	*p*-value
BUN (mg/dL)	26.0±22.51	31.0±25.59	25.02±0.32	0.004*
Creatinine (mg/dL)	1.51±1.75	1.67±1.55	1.48±1.84	0.526
Sodium (mEq/L)	136.27±5.60	135.75±6.41	136.52±5.16	0.351
Hemoglobin (g/dL)	11.06±2.68	11.02±2.55	11.09±2.76	0.865
Albumin (g/dL)	3.50±0.55	3.30±0.63	3.50±0.49	0.022*
Troponin T (ng/L)				0.369
Negative	165 (84.6)	50 (79.4)	115 (87.1)	
Positive	12 (6.2)	5 (7.9)	7 (5.3)	

Values are presented as n (%), mean ± SD, * = significant at *p*-value <0.05
BUN = Blood Urea Nitrogen; SD = standard deviation

to manage due to polypharmacy and underlying disease. Heart failure therapy was a composite of lifestyle modification and medicine and/or device therapy. The main drugs used were diuretic and blood pressure lowering. Patients who had lower SBP received less medication for heart failure therapy due to limitations related to their blood pressure level; however, other factors did not show a correlation with mortality. This is probably due to the small sample size and the fact that data was taken retrospectively from a review of medical records; furthermore, some data were missing, such as troponin level at admission. Another study in Thailand[14], showed that the only factor predicting 6-months readmission and mortality was the use of ACEIs/ARBs. Serum albumin level showed no correlation in that previous study but in the present research it was found to be a predictor of mortality in heart failure. Albumin is a phase reactant protein, and low serum albumin levels may be correlated with chronic illnesses that represent high risk. Further studies of serum albumin levels are required to confirm whether it is a predictive factor.

The median length of stay in this present study was 7.5 days, which is longer than the 6-day stay found in a previous study[15] in which factors that correlated with duration of hospitalization were leg edema, body weight change during hospitalization, duration of use of intravenous diuretic, acute kidney injury, requiring ventilator support, and social problems. In our study, factors that correlated with longer hospitalization (>7.5 days) were female gender, NYHA class IV and serum creatinine levels. Patients with NYHA class IV presented with more severe symptoms than those with lower NYHA classification and needed more aggressive treatment, as did patients with higher levels of serum creatinine; however, this was a retrospective study, some documents were not complete, and using a cutoff point of >7.5 days (longer than the 6 days of the previous study) may have affected the correlation of the variable factors.

Limitations

The present study was a retrospective one using a review of medical records and, as a result, some admission data were not collected. This study had a small sample size and randomized patients who died or survived at a ratio of 1: 2. Some patients with heart failure were not enrolled in this study, and there is a possibility of selection bias. The compliance of patients to treatment was unknown, and this may have affected the mortality rates. Finally, only in-hospital mortality was analyzed, and the effect of heart failure on long-term survival is unknown. Some predictive factors of mortality in heart failure need further investigation for confirmation.

Clinical implications

In hospitalized patients with heart failure, female gender, NYHA class IV, low SBP levels, low serum albumin, and higher serum creatinine levels correlated with higher morbidity and mortality, suggesting that aggressive treatment and closer monitoring are required in this group of patients.

Conclusion

In this present study, age, SBP level and serum albumin were predictors of mortality in patients with heart failure. Median hospital length of stay was 7.5 days, and factors that influenced duration of hospitalization were female gender, NYHA class IV and

Table 3. Baseline characteristics by hospital length of stay

Characteristic	Hospital stay <7.5 days	Hospital stay ≥7.5 days	*p*-value
Age (years)	65.36±13.25	67.25±13.36	0.308
Gender			0.034*
Male	55 (51.9)	38 (37.3)	
Female	51 (48.1)	64 (62.7)	
BMI (kg/cm^2)	23.97±5.79	24.68±7.75	0.534
Smoking			0.430
Never smoked	59 (64.1)	67 (70.5)	
Stopped smoking	20 (21.7)	20 (21.1)	
Smoke	13 (14.1)	8 (8.4)	
Underlying disease			
Diabetes mellitus	47 (44.3)	52 (51.0)	0.412
Hypertension	78 (73.6)	79 (77.5)	0.517
Dyslipidemia	54 (50.9)	42 (41.2)	0.158
Chronic kidney disease	29 (27.4)	45 (44.1)	0.012*
COPD	12 (11.3)	5 (4.9)	0.091
Coronary artery disease	47 (44.3)	45 (44.1)	0.974
Stroke	13 (12.3)	9 (8.8)	0.420
Dilated cardiomyopathy	16 (15.1)	17 (16.7)	0.756
Atrial fibrillation	27 (25.5)	31 (30.4)	0.429
NYHA class			<0.001*
Class II	14 (13.2)	3 (2.9)	
Class III	60 (56.6)	42 (41.2)	
Class IV	32 (30.2)	57 (55.9)	
HF duration			0.283
<18 months	71 (72.4)	56 (65.1)	
>18 months	27 (27.6)	30 (34.9)	
LVEF			0.151
<40%	39 (47.0)	31 (33.7)	
40-50%	13 (15.7)	14 (15.2)	
>50%	31 (37.3)	47 (51.1)	
Medications			
Beta-Blockers	36 (34.0)	32 (31.7)	0.727
ACEI/ARBs	38 (35.8)	37 (36.6)	0.907
CCBs	35 (33.0)	45 (44.6)	0.088
Diuretics	68 (64.2)	66 (65.3)	0.857
Hydralazine	21 (19.8)	18 (17.8)	0.714
Spironolactone	23 (21.7)	15 (14.9)	0.203
Digoxin	16 (15.1)	9 (8.9)	0.172
Physical examination			
SBP (mmHg): mean ± SD	132.54±31.25	137.56±31.16	0.249
DBP (mmHg): mean ± SD	78.41±16.78	79.05±17.51	0.789
HR (bpm): mean ± SD	92.81±23.85	92.12±21.83	0.828
JVP engorgement	36 (34.0)	37 (36.3)	0.727
Rales	102 (96.2)	100 (98.0)	0.435
Pitting edema	64 (60.4)	74 (72.5)	0.063

Values are presented as n (%), mean ± SD, * = Significant at *p*-value <0.05

COPD = Chronic Obstructive Pulmonary Disease; NYHA = New York Heart Association; HF = Heart Failure; LVEF = Left Ventricular Ejection Fraction; ACEIs = Angiotensin-Converting Enzyme Inhibitors; ARBS = Angiotensin Receptor Blockers; CCBs = Calcium-Channel Receptor Blockers; SBP = Systolic Blood Pressure; DBP = Diastolic Blood Pressure; HR = Heart Rate; JVP = Jugular Venous Pressure; bpm = beat per minute; BUN = Blood Urea Nitrogen; SD = Standard deviation

Table 3. Cont.

	Characteristic <7.5 days	Hospital stay ≥7.5 days	*p*-value
Laboratory			
BUN (mg/dL)	30.24±19.24	35.65±25.25	0.830
Creatinine (mg/dL)	1.67±1.05	2.28±2.21	0.013*
Sodium (mEq/L)	136.02±5.61	136.53±5.60	0.513
Hemoglobin (g/dL)	11.27±2.28	10.85±3.04	0.264
Albumin (g/dL)	3.48±0.52	3.40±0.58	0.283
Troponin-T			0.224
Negative	80 (90.9)	85 (95.5)	
Positive	8 (9.1)	4 (4.5)	

Values are presented as n (%), mean ± SD, * = Significant at *p*-value <0.05
COPD = Chronic Obstructive Pulmonary Disease; NYHA = New York Heart Association; HF = Heart Failure; LVEF = Left Ventricular Ejection Fraction; ACEIs = Angiotensin-Converting Enzyme Inhibitors; ARBS = Angiotensin Receptor Blockers; CCBs = Calcium-Channel Receptor Blockers; SBP = Systolic Blood Pressure; DBP = Diastolic Blood Pressure; HR = Heart Rate; JVP = Jugular Venous Pressure; bpm = beat per minute; BUN = Blood Urea Nitrogen; SD = Standard deviation

serum creatinine levels.

What is already known on this topic?

Congestive heart failure is a major public health problem in Thailand.

Mortality predictive factors have varied in different studies.

A meta-analysis study has shown that the 13 variables which correlated with mortality in heart failure patients were age, male sex, body mass index, NYHA classification, smoking, low LVEF, diabetes mellitus, chronic obstructive lung disease, duration of diagnosis heart failure, low systolic blood pressure, not receiving beta-blockers, not receiving ACEIs/ARBs, and serum creatinine levels.

Few studies have been conducted in Thailand.

What this study adds?

In the present study only age, SBP, serum albumin levels were associated with mortality.

Median length of stay was 7.50 (IQR 4-15) days,

Factors that influenced the length of hospital stay of heart failure patients were female sex, NYHA class IV, and serum creatinine levels.

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Potential conflicts of interest

None.

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การศึกษาปัจจัยที่มีผลต่อการเสียชีวิตของผู้ป่วยหัวใจล้มเหลวในโรงพยาบาลราชวิถี

สุรพันธ์ พงศ์สุธนะ, กุลธัช ชอบใช้

ภูมิหลัง: ภาวะหัวใจล้มเหลวพบได้บ่อยในผู้ป่วยที่เข้ารับการรักษาในโรงพยาบาลโดยมีการกลับเข้ารักษาซ้ำในโรงพยาบาลบ่อยครั้ง และบางครั้งก็นำไปสู่การเสียชีวิต อุบัติการณ์การเกิดภาวะหัวใจล้มเหลวเพิ่มขึ้นตามอายุและทำให้เกิดค่าใช้จ่ายในการรักษาทางการแพทย์ที่สูงมาก ในอดีตมีการศึกษาที่พยายามหาปัจจัยทำนายการเสียชีวิตของภาวะหัวใจล้มเหลว แต่ยังมีการศึกษาปริมาณน้อยในประเทศไทย

วัตถุประสงค์: การศึกษานี้มีวัตถุประสงค์หลักเพื่อหาปัจจัยที่มีผลต่อการเสียชีวิตจากภาวะหัวใจล้มเหลวในโรงพยาบาลราชวิถี และมีวัตถุประสงค์รองคือการหาค่ากลางระยะเวลานอนโรงพยาบาลและปัจจัยที่มีผลต่อระยะเวลานอนโรงพยาบาลของผู้ป่วยหัวใจล้มเหลว

วัสดุและวิธีการ: ศึกษาโดยเก็บข้อมูลย้อนหลัง ผู้ป่วยที่รับการรักษาในแผนกผู้ป่วยในอายุรกรรมโรงพยาบาลราชวิถีระหว่างปี พ.ศ. 2552 ถึง 2558 ที่ได้รับ การวินิจฉัยโรคหลักเป็นภาวะหัวใจล้มเหลวแบ่งผู้ป่วยเป็น 2 กลุ่ม คือ กลุ่มที่เสียชีวิต และกลุ่มที่ไม่เสียชีวิตทำการเก็บข้อมูลทั่วไปและข้อมูลทางห้องปฏิบัติการ แล้วนำข้อมูลดังกล่าวมาเปรียบเทียบเพื่อหาปัจจัยที่มีผลการเสียชีวิต

ผลการศึกษา: ผู้ป่วยภาวะหัวใจล้มเหลวจำนวน 208 คนแบ่งเป็น 2 กลุ่ม คือ กลุ่มที่เสียชีวิต 68 คนและกลุ่มที่ไม่เสียชีวิต 140 คน อายุเฉลี่ย 66.28±13.30 ปี เพศหญิงร้อยละ 55.3 ค่าดัชนีมวลกายเฉลี่ย 24.32±6.80 กก./ม.^{2} ค่ากลางระยะเวลาการนอนโรงพยาบาลอยู่ที่ 7.50 (IQR = 4 ถึง 15) วัน โดยประวัติสูบบุหรี่และโรคประจำตัวในผู้ป่วยทั้งสองกลุ่ม ไม่มีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ เมื่อเปรียบเทียบข้อมูล 2 กลุ่ม พบว่าปัจจัยด้านอายุ ระดับ LVEF การใช้ยา spironolactone การใช้ยา digoxin ระดับ SBP ระดับ BUN และระดับค่าอัลบูมิน แตกต่างกันอย่างมีนัยสำคัญทางสถิติ เมื่อนำข้อมูลดังกล่าวมาวิเคราะห์ Multivariate พบว่า อายุ ระดับ SBP และค่าอัลบูมิน มีความสัมพันธ์กับการเสียชีวิตในภาวะหัวใจล้มเหลวโดยมี Odd ratio (95% CI) เท่ากับ 1.034 (1.002 ถึง 1.067), 0.983 (0.967 ถึง 0.998) และ 0.353 (0.169 ถึง 0.740) ตามลำดับ และปัจจัยที่มีผลต่อระยะเวลาการนอนโรงพยาบาลจากภาวะหัวใจล้มเหลว ได้แก่ เพศหญิง ระดับ NYHA class IV และระดับ creatinine โดยมี Odd ratio (95% CI) เท่ากับ 1.802 (1.004 ถึง 3.234), 8.601 (2.258 ถึง 32.765) และ 1.307 (1.023 ถึง 1.670) ตามลำดับ

สรุป: ปัจจัยด้านอายุ ระดับ SBP และค่าอัลบูมิน มีผลต่อการเสียชีวิตในผู้ป่วยที่มีภาวะหัวใจล้มเหลว มีค่ากลางระยะเวลาการนอนโรงพยาบาลที่ 7.5 วันและปัจจัยด้านเพศ ระดับ NYHA class IV และระดับ creatinine มีความสัมพันธ์กับระยะเวลาการนอนโรงพยาบาลจากภาวะหัวใจล้มเหลว