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Medicine

THE RELATIONSHIP PREDICE SCORE AND MORTALITY 30 DAYS IN CHRONIC HEART FAILURE PATIENTS

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ABSTRACT

The Background: Mortality rate of heart failure patients are increasing even they have a good treatment. Therefore, it should be possible to make a prognostic for chronic heart failure patients with use an easy parameter namely predice score.

The aim of the study : To assess the ability of the predice score to predict mortality within 30 days in patients with chronic heart failure.

The Method : We did this prospective research started from 1st July 2016 until 31st December 2016 with concerned chronic heart failure patients as many as 44 patients. We counted the association grade with use Man whitney U.

The Result : The results showed that there was a significant relationship between predice score and mortality (p = 0.004). The mean predice score in the living subjects was 11.77 (SD: 4.07) Meanwhile, the mean predice score of the subjects who died was 17.18 (SD:2,85).

The Conclusion: Predice Score can be used to predict 30-day mortality in chronic heart failure patients who experience worsening because it is statistically significant (p<0,05).

KEYWORDS : predice score, heart failure, mortality

INTRODUCTION

Chronic heart failure is a clinical syndrome (a set of signs and symptoms), characterized by shortness of breath and fatigue (during rest or activity) caused by abnormalities in the structure of the heart or heart function.[1] Heart Failure (HF) places a heavy burden not only on patients and families but also on the community through the use of considerable health resources. It is found more than 20 million sufferers of heart failure worldwide.[3] In Indonesia (Center for Data and Information, Ministry of Health of the Republic of Indonesia, 2013) the prevalence of heart failure is 0.3% or estimated to be around 530,068 people.[4]

In the US, heart failure is one of the causes of high hospital admissions and is the primary diagnosis of> 1 million hospitalizations annually.[3] In Indonesia, heart failure is one of the five diseases with the highest level of care.[4]

Currently there are various models being developed to help predict the outcome in hospitalized heart failure patients.[8] However, most of the existing predictors are complicated to put into practice and ignore important matters such as functional ability of patients. So based on this discourse, a model is then made that includes an evaluation in carrying out daily activities in assessing prognosis, known as the Predice score.

Predice score will predict the mortality rate in chronic heart failure patients with worsening after 30 days by examining biological factors (age, plasma creatinine clearance, ejection fraction, plasma sodium) and non-biological factors (Barthel's index).[13]

In Indonesia, research on predice scores in chronic heart failure patients has not been reported at this time, especially at H. Adam Malik Hospital, Medan. In this study I will look for the relationship between the predice score and the mortality rate after 30 days in patients with chronic heart failure, which is associated with a high incidence of mortality.

AIM

is to assess the ability of the predice score to predict mortality within 30 days in patients with chronic heart failure.

METHOD

This type of research is prospective. Conducted in the inpatient ward of H. Adam Malik Hospital Medan. Time of study July 1, 2016 - December 31, 2016. Inclusion criteria was a diagnosis of chronic heart failure with worsening (NYHA III and IV), age ≥18 years and agreed to voluntarily and in writing.

From anamnese recorded name, age, medical record number, address, telephone number, Barthel index. Blood sampling from mediana cubital vein for examination of renal function, electrolytes upon admission. Then performed an echocardiography examination by a cardiologist. Patients who refused investigation and patients with poor echo windows were excluded from this study.

The researcher recorded the patient's biological values (age, plasma creatine clearance, ejection fraction and sodium) and non-biological (Barthel index) then divided the degree of risk of death based on the predice score: Low risk (0-7): <55% mortality, Moderate risk (8 -13); mortality 55-85%, High risk (14-22): mortality> 85%. Then the patient was followed up for 30 days from the initial examination. Information on the patient's condition was obtained from in-person meetings or by telephone with patients / families.

To see the difference between the mean of the variable who died and the variable that was alive, the Mann Whitney test could be used because the distribution was not normal. And to see the comparative relationship of the categorical independent variables, the chi square test was used with a significance limit <0.05 which was declared significant.

RESULTS

This study was followed by 44 people with chronic heart failure

with worsening (NYHA III and IV) (table 1). Based on the level of severity (predice score), it was found that only 6.8% were at low risk, 29.5% were classified as moderate risk and 63.7% were classified as high risk. More than half of the subjects had electrolyte (sodium) disturbances (59%). Based on the Barthel Index assessment, the majority of subjects were included in the dependent (93.2%). Half of the subjects were classified as systolic heart failure (50%). Based on the assessment of glomerular filtration rate, the majority of subjects had impaired renal function (95.5%). And more than half of the subjects was clinically classified as NYHA III (63%).

Table 1. Demographic Characteristics Of Research Subjects

Characteristics	n = 44
Sex, n (%) Male Female	14(31,8) 30(68,2)
Age, n (%) ≥ 60 yrs old < 60 yrs old	18(41) 26(59)
Severity *predice score*, n (%) Low risk (0-7) Moderate risk (8-13) High risk (14-22)	3(6,8) 13(29,5) 28(63,7)
Natrium , n (%) Normal (135-145mEq/l) Abnormal (<135 mEq/l atau >145mEq/l)	18(41) 26(59)
Barthel Index, n(%) Dependent Independent	41 (93,2) 3 (6,8)
Faction Ejection, n(%) EF <40% EF ≥40%	22(50) 22(50)
GFR, n (%) >200 ≤ 200	2(4,5) 42(95,5)
NYHA with deterioration NYHA III NYHA IV	28 (63) 16(37)

Table 2. The Relationship Between The Predice Score Characteristics And The 30-days Mortality.

		Died n (%)	Alive n (%)	Total	P
Predics core	Low risk	0(0)	3(100)	3 (100)	0.027
	Mode-rate risk	4(30,8)	9(69,2)	13 (100)	
	High risk	18(64,3)	10(35,7)	28(100)	
Total		22(50)	22(50)	44(100)	

There were 18 subjects (64%) with a high risk of death who experienced death within 30 days. None of the 0 (0%) subjects with a low risk of death experienced death within 30 days. Meanwhile, for the moderate risk of death, only 18 subjects (30.8%) experienced death for 30 days. Found a significant relationship between the risk of death as measured using a predice score.
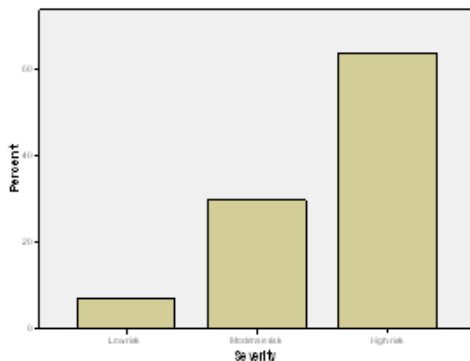

Figure 1. Histogram Graph of Degree of Severity Assessed Using Predice Score.

Figure 1 illustrates an overview of the risk of death based on the predice score, where the high-risk group dominates the 30-days mortality rate (64%) compared to low-risk and medium-risk. (30,8%).
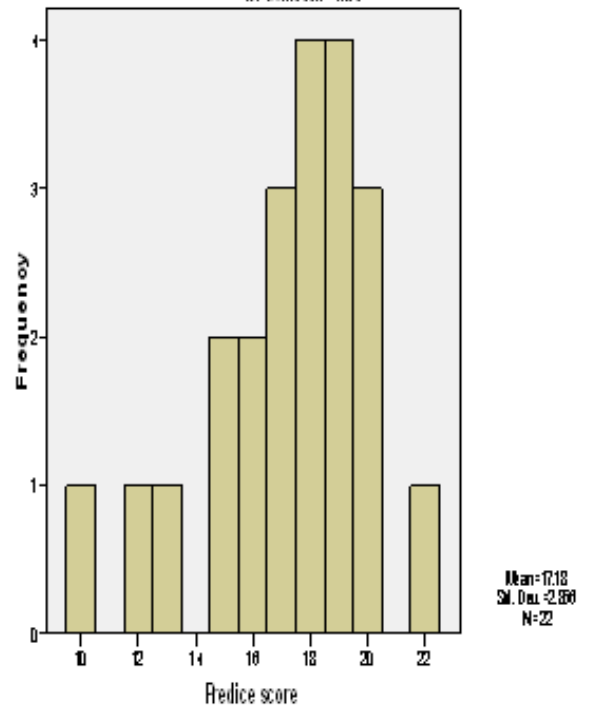

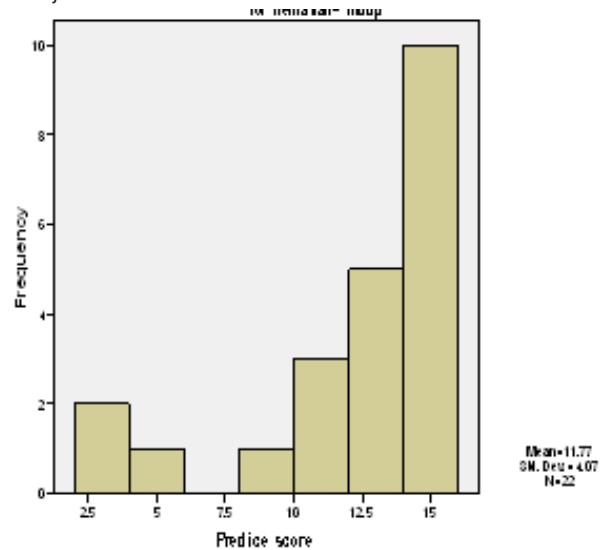**Figure 2** Histogram Graph About Predice Score Value on Subjects who died

Figure 3. Histogram Graph About Predice Score Values on Living Subjects

Table 3. The Relationship Between Predice Score And Mortality

Pre-dice Score	Died Mean (SD)	Alive Mean (SD)	P
	17,18(2,85)	11,77(4,07)	0,004[b]

[b]Mann whitney

The results showed that there was a significant relationship between predice score and mortality (p = 0.004) (table 3). The mean predice score in the living subjects was 11.77 (SD: 4.07) (Figure 3). Meanwhile, the mean predice score of the subjects who died was 17.18 (SD: 2.85) (Figure 2).

DISCUSSION

Heart failure is still one of the main health problems that become a burden in both developed and developing countries which is associated with high morbidity and mortality rates, this pattern is mainly found in hospitalized heart failure patients.

With the aid in evaluating the prognosis of hospitalized heart failure patients, it is hoped that it can help identify high-risk individuals, so that tighter monitoring can be carried out and more intensive intervention is expected to reduce the incidence of morbidity and mortality in heart failure patients.

In this study, with 44 subjects, found a significant relationship between Predice Score and 30 days mortality (p = 0.004). The mean value of the Predice Score of patients who died was 17.18 (SD; 2.85). The results of this study are in line with the results of a previous study regarding the predice score by Auguztin (Spain), the ability of the Predice score to predict mortality within 1 year in patients with heart failure.[6]

The presence of co-morbidity (cardiovascular disease, diabetes mellitus), absence of information about the history of the disease, risk factors (hypertension, smoking) or the use of drugs can affect diagnosis, management and treatment and thus affect the prognosis. The limitations of this study include the small number of samples, not analyzing the number of previous hospitalizations, no assessment of the patient's lifestyle, medication adherence and the possibility of other comorbids that aggravate the patient's post-treatment condition.

CONCLUSION

Predice Score can be used to predict 30-day mortality in chronic heart failure patients who experience worsening because it is statistically significant (p<0,05).