PROCEEDING

The 5th International Conference on Pharmacy and Advanced Pharmaceutical Sciences November 1 – 2, 2017 Yogyakarta, Indonesia

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Preface from Editor

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On behalf of the Editors, I am deeply grateful to all the reviewers who have been working very hard for reviewing manuscripts submitted during the 5th International Conference on Pharmacy and Advanced Pharmaceutical Sciences" held in Sheraton Hotel Yogyakarta, by the Faculty of Pharmacy, Gadjah Mada University, Yogyakarta, Indonesia on November 1 - 2, 2017

We would like to acknowledge to keynote speakers and all the distinguished speakers for their valuable contribution during this conference. Furthermore, we also thank the steering committee for their advice and support. Finally, I would appreciate to all participants, paper and poster presenters who participated in the conference as well as cordially contributed by submitting their full manuscripts published in this proceeding.

Finally, we believe that the presence of this proceeding will significantly contribute to the advance scientific research, especially in the field of Pharmaceutical Science and Thecnology.

Yogyakarta, November 2017,
Chief

Rina Kuswahyuning

Table of Content

THE EFFECT OF KETO-ACIDS SUPPLEMENTS ON GFR PATIENTS WITH CHRONIC KIDNEY DISEASE IN ONE OF GENERAL HOSPITAL IN JAKARTA

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ABSTRACT

Keto-acids are the nitrogen-free analogues of essential amino acids. These amino acids therapy could be used as kidney protection by reduced urea generation, delayed of uraemia and also reduced protein leaking into urine. But there was a lack of study about the effectiveness of keto-acids supplements in patients with Chronic Kidney Disease (CKD) in Indonesia. Aim of this study is to evaluate the effect of keto-acid supplements on GFR patients with CKD. A retrospective cohort study was conducted. Sixty two patients with CKD divided into two groups. The trial group consist of 27 patients which treated by keto-acid supplements and the control group consist of 35 patients without keto-acid supplements. The decrease of GFR was measured in 3 month for CKD stage 5 and six month for CKD stage 4 and 3b. The decrease of GFR compared between two groups statistically using t-test study. The results showed that there were no significant difference between two groups baseline (p value gender = 0.64; p value age 0.74; p value severity of CKD = 0.83). The decrease of GFR in trial group was lower than in control group. In the trial group, the decreases of GFR in patient with CKD stage 3b, 4 and 5 were -8.87±0.67, -4.11±2.29 and -1.40±1.03. While in control group, the decrease of GFR value were -14.02±9.13 in stage 3b, -4.47±4.45 in stage 4 and -1.60±1.01. But those difference in each stage of patients were not statistically significant (p= 0.41 in stage 3b, p = 0.82 in stage 4 and p= 0.72 in stage 5). We concluded that keto-acids supplement has no significant effect on GFR patients with CKD in one of general hospital in Jakarta.

Keywords: Keto-Acid, GFR, Chronic Kidney Disease, General Hospital, Jakarta

INTRODUCTION

Chronic Kidney Disease (CKD) is one of the high prevalence disease in Indonesia. Indonesian Nephrology Association reported that the prevalence

of CKD in Indonesia is about 12.5% in 2006 (Kementerian Kesehatan RI, 2017).

Keto-acids were used worldwide since a long time ago in patients with CKD (Bellizzi, 2013). Keto-acids are the nitrogen-free analogues of essential amino acids. It has two advantages of using keto-acids in patient with CKD. First, keto-acids could be used as renal protection by reduced urea generation, delayed of uremia and also reduced protein leaking into urine. The other advantage is keto-acids also could maintain the nutrition of patients (Nitchwe, 2002).

A study about the effect of low protein diet supplements with keto-acids on progression of CKD proved that the rate of CKD progression revealed a 57% slower decline in renal function with the combination between keto-acids and low protein diet compared to low protein diet only. It also delaying dialysis for almost a year in stage 4 and 5 patients (Garnaeta & Mircscu, 2013). There also the other study about the efficacy of the essential amino acids and keto analogues on the CKD progression rate in real practice in Rusia. The study showed that low protein diet combine with keto-acids supplements lead to decrease of CKD progression both in well-designed clinical study and in real nephrologist practice (Zemchenkov & Konakova, 2016).

While in Indonesia, there was a lack of study about the effectiveness of keto-acids supplements in patients with CKD. So that, the aim of this study is to evaluate the effect of keto-acids supplements on GFR patients with CKD in one of general hospital in Jakarta.

MATERIAL AND METHODS

This is an observational study and held in nephrology department in one of general hospital in Jakarta. We use 62 out-patients with CKD in stage 3b, 4 and 5. They were divided into 2 groups. Trial group was patients with low protein diet and also received keto-acid supplements and control group was patients with low protein diet only. In the trial group there were 27 patients while in control group consist of 35 patients. Each group has 3 sub groups (stage 3b, 4 and 5).

We collected data from medical records in January - December 2015. The age of patients, gender, weight of body, and creatinin serum were noted. Then we classified the stage of CKD and measured the decrease of Glomerulus Filtration Rate (GFR) patients. We measured the decrease of GFR patients in six months for CKD stage 3b and 4 patients and 3 months for patients in stage 5. The effect of keto-acids supplements was analyzed by compared the decrease of GFR patients in each sub groups statistically using t-test study.

RESULT AND DISCUSSION

CKD is one of degenerative disease. When people getting old, the functions of kidney also decrease. This study found that the most patients with CKD was > 55 years old. Indonesian Primary Health Study (2013) reported that patient with CKD was higher in 35 - 44 years old compared to 25-34 years old (Kementerian Kesehatan RI, 2017). The decrease of kidney function in productive age could be affected by the life style (Kementerian Kesehatan RI, 2013).

Beside the age, gender is also one of the risk factors of CKD. Some study shown that male has a higher risk of CKD than female. This study also showed that male patients with CKD (53.23 %) were more than female (46.77 %). This result linear to data from Indonesian Renal Registry (2014) which reported that male patients with CKD was 55.77% and female 44.23% (Perkumpulan Nefrologi Indonesia, 2014).

Table 1. Patients Characteristic Baseline

Patients Characteristic	Trial Group	Control Group	p-value
Age (years old)	57.15±12.40	56.14±10.58	0.74
Gender (number of people):			0.64
Male	12	21	
Female	15	14	
Severity (number of people):			0.83
Stage 3b	3	7	
Stage 4	12	10	
Stage 5	12	18	

Table 1 showed that there were no significant difference between two groups baseline in this study. Age, gender and severity of CKD were the same in two groups ($p>0.05$). We measured GFR patients in different period. Minimum measurement of GFR in patients with CKD stage 5 is 3 month and 6 months in patients with CKD stage 4 and 5. After measuring the GFR patients, we found that the decrease of GFR in trial group was lower than in control group (shown in table 2). But those difference in each sub groups of patients were not statistically significant.

This result may be caused by the lack of this study. Retrospective cohort design difficult to find information whether all patients obey to do the low protein diet or not. Beside that, we could measured GFR patients only one period a year in each sub groups. It was because of the serum creatinin

in the hospital was not consistently measured every month, so there were some gaps in data which affect the GFR measurement.

Table 2. The Decrease of GFR patients in CKD

Stage	GFR Value		p-value
	Trial Group	Control Group	
3b	-8.87±0.67	-14.02±9.13	0.41
4	-4.11±2.29	-4.47±4.45	0.82
5	-1.40±1.03	-1.60±1.01	0.72

In the next study, we suggest to evaluate prospectively the efficacy of keto-acids supplements in patients with CKD. Data of serum creatinin patients should be measured consistently at least every 3 month in CKD stage 5 and 6 month in CKD stage 3b and 4.

CONCLUSION

We concluded that keto-acids supplement has no significant effect on GFR patients with CKD in one of general hospital in Jakarta.

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