The Difference In The Results Of Urine Protein Levels In The Semi-Quantitative Method Of Esbach In Urine Accommodates 12 Hours With 24 Hours In Patients With Urinary Tract Infections

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ABSTRACT

Urinary tract infection is a common infection in the community caused by the growth of microorganisms in the human urinary tract, urinary tract infection is caused by bacteria by identifying the presence of protein in the urine. Protein esbach gold method standard urine storage using urine storage 24 hours while in urine sampling can use urine storage 12 hours but quantitatively and scientifically there is no known difference in urine protein levels using the semi-quantitative *esbach method.* Determine the difference in protein content results measured by the semi-quantitative *esbach* method between urine samples collected for 12 hours and those collected for 24 hours in patients with urinary tract infections. This type of research is *Observational Analytic* with a *cross sectional approach*. The sample was in the form of urine in patients with urinary tract infections, the number of samples used a total sampling of 24 samples, the data taken were semi-quantitative urine protein levels *of the esbach* method. The collected data was then processed using SPSS with *Mann Whitney test analysis*. The average urine protein content of the 12-hour semi-quantitative *method of esbach* was 0.18 g / l, the average urine protein content of the 24-hour semi-quantitative method *of esbach* was 0.39 g / l, the difference in protein levels *of the esbach* method in urine collected 12 hours and 24 hours was 0.21 g / l, mathematically there was a difference while statistically there was no difference with the value of (p) = 0.748. 12-hour and 24-hour urine levels showed no difference in protein levels of semi-quantitative *esbach method* in patients with urinary tract infections.

INTRODUCTION

Urinary tract infection is an infection that commonly occurs in society caused by the growth of microorganisms in the human urinary tract. The human urinary tract is an organ that works to collect and store urine as well as organs that excrete urine from the body, namely the kidneys, ureters, bladder and urethra (Sari & Muhartono, 2018).

Urinary tract infections are caused by an imbalance between pathogenic microorganisms that can cause infections in the urinary tract. There are many

factors that cause an increase in the incidence of UTIs, such as factors that influence the incidence of UTIs, which can be influenced by

the bacteria (uropathogen) Pseudomonas aeruginosa E, varying causes, age, gender, lying down for a long time, use of immunosuppressant drugs and steroids, catheterization. , the habit of holding in urination, and lack of water intake. Several risk factors cause urinary tract infections due to catheter placement, but these infections can be prevented and reduce the infection rate so that appropriate interventions can be determined to carry out prevention.

on infection rates. Apart from that, poor genital hygiene behavior can also result in various kinds of infections, one of which is urinary tract infections (Maulani et al., n.d.2018).

Based on data from the World Health Organization (WHO), the number of sufferers of Urinary Tract Infections worldwide has reached around 8.3 million people (Sari & Muhartono, 2018) Based on data from the outpatient installation at the regional general hospital (RSUD) of NTB Province, there were 126 patients with urinary tract infections (Herlina et al., 2021).

The diagnosis of UTI can be confirmed by urinalysis, urinalysis is an important examination to confirm various diagnoses. A urinalysis examination, apart from providing an indication of the condition of the kidneys as an excretory organ, is also able to provide an indication of a person's various systemic conditions. That is why urinalysis is one of the laboratory tests that is often requested by a doctor (Rizalatul,2020).

MATERIALS/METHOD

This type of research is Observational Analytic with a cross sectional approach. The sample was in the form of urine in patients with urinary tract infections, the number of samples used a total sampling of 24 samples, the data taken were semi-quantitative urine protein levels of the esbach method. The collected data was then processed using SPSS with Mann Whitney test analysis.

RESULTS

Tablel 1. Results of 12 Hour and 24 Hour Collection Urine Examination

No.	sample code	Urine protein content according to the Esbach method (g/h)		difference (g/L)
		12 jam	24 jam	
1	A1	0,07	0,15	0,08
2	A2	0,07	0,15	0,08
3	A3	0,07	0,15	0,08
4	A4	0,07	0,15	0,08
5	A5	0,12	0,24	0,12
6	A6	0,12	0,24	0,12
7	A7	0,12	0,24	0,12
8	A8	0,12	0,36	0,24
9	A9	0,14	0,30	0,16
10	A10	0,14	0,30	0,16

No.	sample code	Urine protein content according to the Esbach method (g/h)		difference (g/L)
		12 jam	24 jam	
11	A11	0,14	0,30	0,16
12	A12	0,14	0,30	0,16
13	A13	0,14	0,30	0,16
14	A14	0,21	0,45	0,24
15	A15	0,21	0,45	0,24
16	A16	0,24	0,48	0,24
17	A17	0,24	0,48	0,24
18	A18	0,24	0,48	0,24
19	A19	0,28	0,60	0,42
20	A20	0,28	0,60	0,42
21	A21	0,28	0,60	0,42
22	A22	0,28	0,60	0,42
23	A23	0,35	0,75	0,40
24	A24	0,42	0,90	0,48
Lowest		0,07	0,15	0,08
Highest		0,42	0,90	0,48
Average		0,18	0,39	0,21

Table 1. Test Results for Normality of Urine Protein Levels

Test of Normality			
	Shapiro-wilk		
	Statistic	df	Sig.
Urin 12 jam	.913	24	0.041
Urin 24 jam	.845	24	.002

Table 2 shows that the protein level data for 12 hour collected urine has a probability value of 0.041, which is <0.05 and 24 hour collected urine is 0.002, which is <0.05, which shows that the data is not normally distributed. Both data on protein levels in collected urine each have an abnormal distribution and the data is assumed to be not homogeneous, so a non-parametric Man Whitney test will be carried out.

Table 2. Mann Whitney Test Results for Urine Protein Levels

Variabel	Average	Standard deviation	P
Urin tampung 12 jam	0,18	23.85	
Urin tampung 24 jam	0,39	25.15	0,748

Table 3 shows that there is no significant difference between the protein levels of 12-hour and 24-hour urine using the Esbach method in urinary tract infection sufferers between 12-hour urine and 24-hour urine because the probability value is 0.748 > 0.05, thus Ha which states that there was a difference between 12 hour urine collection and 24 hour urine collection using the Esbach method in patients with urinary tract infections was rejected and Ho, who stated that there was no difference between 12 hour collection urine and 24 hour urine collection in patients with urinary tract infections, was accepted.

DISCUSSION

Urinary tract infections remain a significant health problem. In Indonesia, the incidence of urinary tract infections in adolescents aged 10-18 years reaches around 35% -42%, while in young people aged 19-22 years it is around 27% -33% Proteinuria is the presence of protein in human urine that exceeds the normal value of 150 mg/d, protein in urine up to a certain amount is still considered functional. The presence of protein in the urine is very important, usually proteinuria is said to be pathological if the level is above 200 mg/d. The diagnosis of proteinuria is usually made by measuring the amount of protein in the urine through urinalysis and the urine protein-creatinine ratio, on several examinations at different times. Some say persistent proteinuria if urine protein persists for 3 months or more and the amount is usually only slightly above the normal value, it is said to be massive proteinuria if urine protein exceeds 3500 mg/d (Wibowo, 2023)

Previous research conducted by Alimandong in 2020 resulted that the ratio of protein/creatinine in urine between 24 hours and 24 hours in children with proteinuria was from 55 samples, consisting of 37 patients with mild proteinuria, and 18 samples with severe proteinuria. The results of the study showed that the cut point value for the urine protein/creatinine ratio during severe and mild proteinuria was >3.56. AUC 0.866 sensitivity 73%, specificity 72.2%, positive predictive value 56.5% negative predictive value 84.4%. The conclusion is that the correlation between the Esbach level and the urine protein/creatinine ratio when obtained is a moderate positive correlation so that it has a diagnostic value that if the Esbach level cannot be checked then the urine protein/creatinine ratio during this time can represent the Esbach method. (Alimandong, 2020)

Based on the results of research on examining protein levels in 12 and 24 hour urine with the Esbach method in patients with urinary tract infections, the lowest protein level was 0.07 g/L and classified as optimal category, the highest level was 0.90 g/L and classified as high category, in Examination of the 12-hour urine protein level showed that the 24 samples used were in the optimal category, the average urine protein level was 0.18 g/l and was in the optimal category.

Meanwhile, for checking protein levels in 24-hour urine, the lowest level is 0.15 and is classified as optimal, the highest level is 0.90 g/l and is classified as slightly high. In the 24 hour urine protein examination, there were 18 samples that were in the optimal category and 6 samples were in the slightly high category. In this study the average 24 hour urine protein level was 0.39 and was in the optimal category, the average urine protein level. The 12 hour and 24 hour capacity of the Esbach method in patients with urinary tract infections experienced an increase of 0.21 g/l.

CONCLUSIONS

The average value of the Esbach method for 12-hour urine protein levels in patients with urinary tract infections is 0.18 g/l, the average value of 24-hour urine protein content using the Esbach method in patients with urinary tract infections is 0.39 g/l, there is no significant difference between the results of urine protein levels using the Esbach method in 12-hour and 24-hour urine samples in patients with urinary tract infections.

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How to cite: