Jurnal Eduhealth
Volume 16, Number 01 2025 DOI 10.54209/eduhealth.v16i01
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

The Effect Of Time Variation Of Urine Glucose Level Testing On Patients With Diabetes Mellitus At Dolok Sanggul Regional Public Hospital

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Article Info
Keywords:
Glucose Urine,
Diabetes mellitus,
Glucose Levels

ABSTRACT
The Effect of Variation in Examination Time on Urine Glucose Levels at Dolok sanggul Regional General Hospital, Humbang Hasundutan Regency. Urinalysis is the most frequently performed examination. Urinalysis examination should be performed <1 hour after sampling. However, often with the large number of urine samples that must be examined and other conditions that cause the examination to be delayed. From previous studies, delayed urinalysis examination did not result in changes in urine sugar results. This study aims to determine the effect of delayed urine sample examination time on urine glucose examination results. This type of research is an experimental laboratory with chemical urinalysis examination for urine glucose examination, with a total of 39 samples carried out on April 1, 2023 - April 31, 2023 at the Dolok sanggul Regional General Hospital Laboratory, Humbang Hasundutan Regency. The results of statistical tests from this study showed no effect of the length of delay on urine glucose parameters. It can be concluded that there is no effect of delayed urine sample examination time on urine glucose examination results at Dolok sanggul Regional General Hospital.

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INTRODUCTION

Urine is a waste fluid excreted by the kidneys and removed from the body through the urination process. This process functions to remove waste molecules in the blood that have been filtered by the kidneys, maintain the balance of body fluids, and maintain normal body functions. Urine examination can help detect various abnormalities in the body, considering that most body fluids are excreted through urine (Ma'rufah, 2011). Urinalysis is a laboratory examination performed to start urine content and identify potential abnormalities in patients. One of the examinations that is often performed is measuring glucose in urine. Glucose in urine can be tested through non-specific methods, such as reduction reactions, or specific methods using the glucose-oxidase enzyme. To obtain accurate results, fresh urine is highly recommended to be examined immediately, because delays can cause changes in urine composition that affect the results of the examination (Gandasoebrata, 2013). Delays in urine examination often occur due to the sample delivery process, the large number of patients, and

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limited laboratory personnel. The Clinical and Laboratory Standard Institute (CLSI) recommends that urine examination be carried out a maximum of two hours after discharge to avoid reducing sample quality. Longer delays can lead to misdiagnosis due to changes in urine content, including urine glucose levels (Aryadi, 2016). This study aims to provide the effect of variations in examination time on urine glucose levels, with time intervals of immediately, 30 minutes, 60 minutes, 90 minutes, and 120 minutes. The results of this study are expected to provide optimal guidelines in maintaining urine examinations in hospital laboratories.

METHOD

Genius research This is me who is going up right? type research *experimental* if reviewed from the comparative nature of the problem, namely the type of research that wants to find or see the differences or comparisons of the variables studied by collecting data at the same time to find urine glucose results at the time of examination immediately, 30 minutes, 60 minutes, 90 minutes, and 120 minutes. D e s a in This in d a lam and y a Still there is variable outside who also participates in influencing to t e r b e d e n t y a v a r i a b e l it depends (interested) I am in have an experimental seal Is an nv ari a b e ld e pe nd e i t is not an e py - the eye is infl uenced by v a ri a b e l independent . Things This can happen karen ati da ka da n y a variable rotary control and a mpel not selected randomly (Sugiyono , 2012) . Research This no i do n't like this to you m pok comparator (cont r ol) , however it has been yoked and obs e rv a si *pre- test* (pre - test *)* which allows me and test pe fox a n - per fox a n that happened in phone there are and are practices see run fast research This enter into *one group pr e te st - posttest* (N otoatmod jo , 2010)

RESULTS AND DISCUSSION

A study has been conducted on the effect of variations in examination time on urine glucose levels at the Dolok sanggul Regional General Hospital Laboratory with the results as shown in table 4.1 below:

Table 1 Characteristics of Research Subjects Based on Age, Gender, and Blood Glucose Levels

Variables	Frequency (n)	Percentage (%)
Age (Years)		
20 – 60 Years (Adult)	23	58.97
>60 Years (Elderly)	16	41.04
Gender		
Man	19	48.72
Woman	20	51.28

Based on table 4.1, the data obtained shows that the most gender is female as many as 20 people with a percentage of 51.28% and male as many as 19 people with a percentage of 48.72%. The most age is 20-60 years (Adults) as many as 23 people with a percentage of

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58.97% and at the age of >60 years (Elderly) as many as 16 people with a percentage of 41.04%.

Based on the results of the study conducted, namely looking at the differences in urine glucose examination with time variations at the Dolok sanggul Hospital Laboratory, Humbang Hasundutan Regency, North Sumatra Province, against urine glucose examination with time variations immediately, 30 minutes, 60 minutes, 90 minutes and 120 minutes. In the examination of urine glucose parameters with time variations did not affect the examination results. False negative results in this examination can only be caused by reducing agents in the urine, such as vitamin C (more than 40mg/dl), homogentisic acid, aspirin and substances that interfere with enzymatic reactions, such as levodeva, glutathione, and drugs such as diphyrone. The presence of glucose in the urine is called glucosuria. Glucosuria must be watched out for because it indicates a disorder or disease. If glucosuria with hyperglycemia (increased blood sugar levels) then it is likely a diabetes mellitus (DM), *Cushing's syndrome* , pancreatic disease, central nervous system disorders, severe metabolic disorders (eg in severe fires, advanced liver disease, sepsis) or due to corticosteroid drugs, thiazides, oral contraceptives. If glucosuria without hyperglycemia can be found in kidney dysfunction, pregnancy, sugar other than glucose in the urine or eating a lot of fruit. The results of the study sample with time variations of 0 minutes, 30 minutes, 60 minutes, 90 minutes, 120 minutes in the examination of urine samples against the results of glucosuria at the Dolok sanggul Regional General Hospital, Humbang Hasundutan Regency showed no effect of the examination results on glucosuria with a total of 39. After examining 39 urine samples from DM patients with different time variations, no changes were found in urine glucose results.

On immediate examination (0 minutes) the result was (+)
At a delayed time (30 minutes) the result was (+)
At a delayed time (60 minutes) the result was (+)
At a delayed time (90 minutes) the result was (+)
At a delayed time (120 minutes) the result was (+)

Research Result Data

NO.	Name	Age (Years)	Gender	Urine Glucose Results				
				Quick	30'	60'	90'	120'
1	HA	66	♀	+1	+1	+1	+1	+1
2	English	62	♀	+2	+2	+2	+2	+2
3	English	57	♂	+1	+1	+1	+1	+1
4	RH	59	♀	+2	+2	+2	+2	+2
5	PS	55	♂	+3	+3	+3	+3	+3
6	English	58	♂	+1	+1	+1	+1	+1
7	Bachelor	57	♂	+1	+1	+1	+1	+1
8	English	67	♀	+1	+1	+1	+1	+1
9	MOBILE PHONE	58	♀	+2	+2	+2	+2	+2
10	JL	45	♂	+2	+2	+2	+2	+2
11	RS	43	♀	+2	+2	+2	+2	+2
12	Mr.	56	♂	+3	+3	+3	+3	+3

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NO.	Name	Age (Years)	Gender	Urine Glucose Results				
				Quick	30'	60'	90'	120'
13	English	62	♂	+2	+2	+2	+2	+2
14	English	55	♀	+1	+1	+1	+1	+1
15	MS	48	♀	+1	+1	+1	+1	+1
16	English	59	♀	+1	+1	+1	+1	+1
17	RACE	28	♀	+1	+1	+1	+1	+1
18	English	40	♂	+2	+2	+2	+2	+2
19	RS	49	♀	+2	+2	+2	+2	+2
20	MS	71	♀	+1	+1	+1	+1	+1
21	English	61	♂	+3	+3	+3	+3	+3
22	Bachelor	57	♂	+3	+3	+3	+3	+3
23	WE	65	♀	+3	+3	+3	+3	+3
24	RS	61	♀	+2	+2	+2	+2	+2
25	TP	58	♂	+1	+1	+1	+1	+1
26	air conditioning	57	♀	+2	+2	+2	+2	+2
27	DSR	65	♂	+3	+3	+3	+3	+3
28	public relations	70	♂	+2	+2	+2	+2	+2
29	km	59	♂	+2	+2	+2	+2	+2
30	English: IJL	65	♀	+3	+3	+3	+3	+3
31	RS	68	♀	+3	+3	+3	+3	+3
32	English: RTL	55	♂	+2	+2	+2	+2	+2
33	LG	48	♀	+1	+1	+1	+1	+1
34	MRB	48	♂	+2	+2	+2	+2	+2
35	JT	75	♂	+2	+2	+2	+2	+2
36	PT	65	♀	+1	+1	+1	+1	+1
37	SENIOR HIGH SCHOOL	53	♂	+2	+2	+2	+2	+2
38	IR	62	♂	+3	+3	+3	+3	+3
39	English	62	♀	+1	+1	+1	+1	+1

Statistical Data Analysis

Urine Glucose Test Results								
	N	Means	Standard Deviation	Standard Error	95% Confidence Interval for the Mean		Minimum	Maximum
					Lower Limit	Upper Limit		
Quick	39	1.87	,767	,123	1.62	2.12	1	3
30 minutes	39	1.87	,767	,123	1.62	2.12	1	3
60 minutes	39	1.87	,767	,123	1.62	2.12	1	3

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Statistical Data Analysis

Urine Glucose Test Results								
	N	Means	Standard Deviation	Standard Error	95% Confidence Interval for the Mean		Minimum	Maximum
					Lower Limit	Upper Limit		
90 minutes	39	1.87	,767	,123	1.62	2.12	1	3
120 minutes	39	1.87	,767	,123	1.62	2.12	1	3
Total	195	1.87	,759	,054	1.76	1.98	1	3

Homogeneity of Variance Test

Urine Glucose Results			
Levene Statistics	df1	df2	Signature.
,000	4	190	1,000

Analysis of Variance

Urine Glucose Results					
	Sum of Squares	df	Mean Square	F	Signature.
Inter Group	,000	4	,000	,000	1,000
In Group	111,795 people	190	,588		
Total	111,795 people	194			

CONCLUSION

From the results of urine glucose examination with a time period of 0 minutes, 30 minutes, 60 minutes, 90 minutes, and 120 minutes , no differences were found in the results. So it can be concluded that delaying routine urine examination, especially urine glucose, until 1-20 minutes after being collected will not affect the results .

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