Differences Of Menstrual Cycle Before and After Hemodialysis In Women Suffering Chronic Kidneys

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Abstract: The menstrual cycle is part of the regular process that prepares a woman's body each month for pregnancy. The bleeding period, known as the menstrual period (or menses, or menstruation), (Saryono, 2009). Factors that can cause menstrual pattern disorders are systemic disorders such as chronic renal failure. Chronic Kidney Disease in the world is currently experiencing an increase and becoming a serious health problem, the results of the 2010 Global Burden of Disease study, Chronic Kidney Disease was the 27th leading cause of death in the world in 1990 and increased to 18th place in 2010. This type of research is an observational analytic study using a cross sectional approach. This research was conducted in August-October 2020. The author took the place of research in the Hemodialysis Room (HD) Roemani Muhammadiyah Hospital Semarang. The results of the study based on the Paired Sample Test output table showed that the Sig. (2-tailed) is 0.001 <0.05, then H0 is rejected and Ha is accepted. So it can be denied that there is a difference in the average between the menstrual cycle before and after hemodialysis. Chronic kidney failure itself causes hormone-hormonal disruption. From the results of the study, it was found that there was a menstrual cycle before and after undergoing hemodialysis in women with CRF at Roemani Muhammadiyah Semarang Hospital.
Keywords: Menstrual Cycle, Hemodialysis, Chronic Renal Failure.

1.Introduction

Puberty is a period of life when the reproductive organs develop rapidly and reach maturity. The first signs of puberty are the development of breasts and pubic hair. The body grows rapidly and gives shape to the female body. Puberty reaches its peak at the onset of menstruation, the first menstrual period is called menarche (Fraser, 2009). The menstrual cycle is part of the regular process that prepares a woman's body each month for pregnancy. The bleeding period, known as the menstrual period (or menses, or menstruation), (Saryono, 2009). The menstrual cycle usually starts in young women aged 12-15 years (menarche) and continues until the age of 40-50 years (menopause) depending on various factors, including women's health, nutritional status, and body weight relative to height. In general, the menstrual cycle lasts 28 days, the normal cycle is 21-35 days. The length of the cycle can vary for a woman during different times of her life, and even from month to month depending on a variety of things, including a woman's physical, emotional, and nutritional health. During the menstrual cycle, the ovaries produce the hormones estrogen and progesterone (Saryono, 2009). The menstrual cycle includes cyclical changes in the endocrine, ovaries, and uterus. Both individual and environmental physiological factors can influence this cycle change (Walsh, 2008). The hypothalamus is the main source of hypothalamic control and regulates the anterior pituitary gland via hormonal pathways. In contrast, the anterior pituitary gland regulates the ovaries with hormones. Finally, the ovaries produce hormones that control the changes that occur simultaneously and in harmony. A woman's mood can change along with this cycle because of the close relationship between the hypothalamus and cerebral cortex (Franser, 2009).

Factors that can cause menstrual pattern disorders in Hestiantoro (2009) are: impaired hormone function, systemic abnormalities, anxiety, adenoids, excessive prolactin hormone, physical abnormalities (reproductive organs) such as: fertility disorders, recurrent abortion, and malignancy in organs. reproduction. Chronic Kidney Disease in the world is currently increasing and becoming a serious health problem, the results of the 2010 Global Burden of Disease study, Chronic Kidney Disease was the 27th leading cause of death in the world in 1990 and increased to 18th place in 2010. 2017 Chronic kidney disease ranks second with the highest number of sufferers after heart disease (Ministry of Health data, 2014 - 2015). Arikan et al's study showed that 13 (43%) patients with chronic renal failure experienced menstrual

disorders. In addition, 14 (47%) of these patients had amenorrhea after hemodialysis program and amenorrhea continued in 5 (36%) cases during the study. The most important cause of menstrual disorders is increasing levels of LH and prolactin due to disruption of the hypothalamic-m axis of the pituitary gland. In chronic renal failure patients who had a short life span in the 1960s even if the most effective treatment was transplanted kidney, hemodialysis was a successful form of treatment that prolonged patient survival and resolved menstrual disorders by correcting the hypothalamic-pituitary-ovarian axis (Arikan et al, 2011). More than 2 million people worldwide receive treatment with dialysis or a kidney transplant and only about 10% actually experience these treatments. Ten percent of the world's population has Chronic Kidney Disease and millions die each year because they don't have access to treatment. In 2011, around 113,136 patients in the United States had End Stage Renal Diseasse (ESDR), the main causes of which were diabetes and hypertension, with the highest number of cases being found at the age of more than 70 years. Research in the United States is 2.3 times the risk of developing CKD for people who consume two or more glasses of cola per day. In 2013, as many as 2 per 1000 population or 499,800 Indonesians suffered from kidney failure. As many as 6 per 1000 population or 1,499,400 Indonesians suffer from kidney stones (Riskesdas, 2013). Chairman of the Indonesian Nephrology Association (Pernefri) Korwil of Central Java, DR Dr Lestariningsih SpPD KGH revealed that the Indonesian Renal Registry (IRR) report, the Pernefri data center stated that the number of patients in 2016 who underwent dialysis was 52,835, with a total of 25,446 new patients.

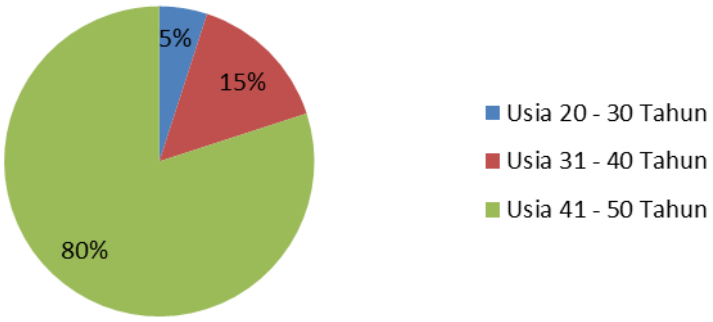
2.Methods

A analytic observational research using a cross sectional approach was conducted among women with CRF who underwent Hemodialysis (HD) Roemani Muhammadiyah Semarang Hospital. The study was carried out on August-October 2020. This study was applying total sampling technique. The inclusion criteria were women with CRF who were still menstruating and women with hemodialysis at Roemani Muhammadiyah Semarang Hospital. The exclusion Criteria Women with CRF who are not willing to be respondents and women with CRF who have menopause.. This study uses primary data obtained from direct interviews and filling out questionnaires and observation sheets. Data processing in this study used bivariate analysis and statistical tests using computer software software.

3.Result and Discussion

3.1Univariate Analysis

Research conducted in the HD Room Roemani Muhammadiyah Hospital Semarang used 20 samples or respondents with the criteria of women with CRF with reproductive age who were still menstruating. The results of this study indicate that the average age of the respondents is 41 - 50 years as many as 16 respondents.

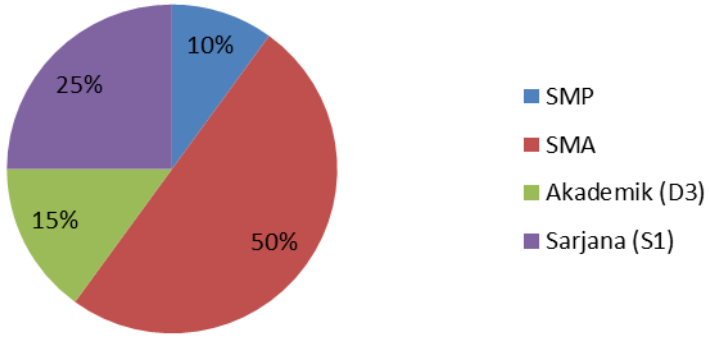


Graph 3.1:

Distribution of samples based on age of GGK sufferers in RS Roemani Muhammadiyah Semarang

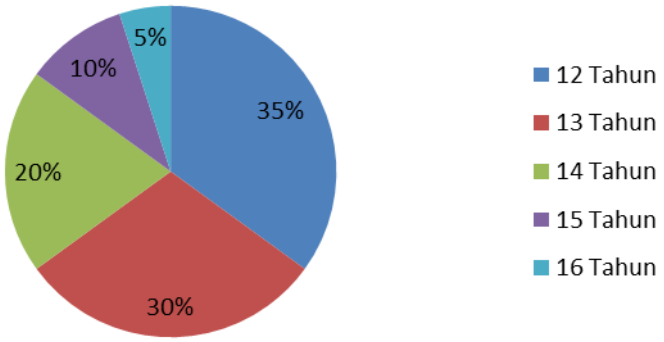
Based on the age of the respondents in the graph above, it shows that most people with CRF are at an older age. According to Fowler (2003) states that the aging process or increasing age of a person will reduce the biological function of all existing organs. Increasing age or age will increase the risk of an organ disorder.

Iseki (2008) states that one of the factors that affect the decline in kidney function is age. Iseki said that the age of CKD sufferers in Japan has increased the number of people over 50 years of age.



Graph 3.2:
Sample distribution based on the education of people with chronic disease at Roemani Muhammadiyah Hospital, Semarang

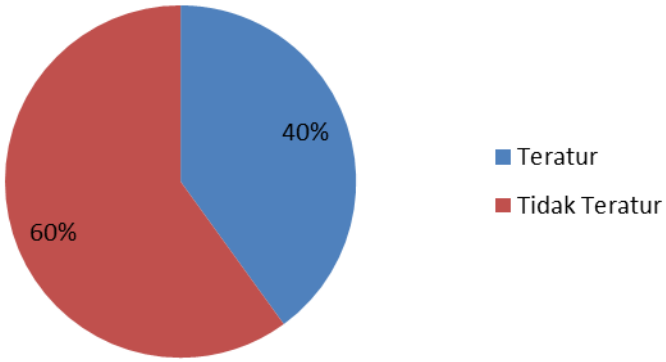
Based on graph 4.2 above, it shows that the highest percentage in the high school education category is 10 respondents (50%) of the total respondents. And the lowest percentage in the junior high school education category is 2 respondents (10%) of the total respondents. One of the factors of knowledge is education. Various information from many external parties is important to increase knowledge of people with chronic disease, both from the media, health workers, and from friends. Information has an influence on someone's knowledge. Someone who has a lot of information will have extensive knowledge (Notoatmodjo, 2012).



Graph 3.3:
Distribution of Samples based on the Age of Menarche in CKD Patients at Roemani Muhammadiyah Hospital, Semarang

Based on the graph 4.3 above, it shows that the highest percentage of the Menarche age category at the age of 12 years is 7 respondents (35%) of the total respondents. And the lowest percentage of the Menarche age category at the age of 16 was 1 respondent (5%) of the total respondents. According to the Journal (Zulfuziastuti, 2017) that of the 30 respondents in the study, the average age of Menarche respondents was obtained by the majority of students aged 12 years, a number of 20 students (66.7%), then 11 years of age a number of 5 students (16.7%), Then the age of 10 years is 3 students (10.0%) and a minority aged 13 years 1 student (3.3%) and 14 years old also 1 student (3.3%). This is influenced by nutritional intake. Nutrition affects sexual maturity in adolescents who get menarche earlier, they tend to be heavier and heavier at the time of first menstruation compared to those who have not menstruated at the same age. In general, those

who mature earlier will have a higher Body Mass Index and those who mature late have a smaller BMI at the same age (Soetjiningsih, 2004).



Graph 4.4:
Sample Distribution Based on Menstrual Patterns of People with CRD at Roemani Muhammadiyah Semarang Hospital

Based on the Figure 4.4 above, it shows that the highest percentage of the irregular menstrual pattern category is 12 respondents (60%) of the total respondents. And the lowest percentage of the regular menstrual pattern category were 8 respondents (40%) of the total respondents. Most of the respondents experienced hypomenorrhea, namely menstrual bleeding that is shorter and or less than usual with little or light menstrual discharge (Jones, 2002). Hypomenorrhea is caused by lack of endometrial fertility due to malnutrition, chronic disease and hormonal disorders. The presence of hypomenorrhea does not interfere with fertility (Simanjuntak, 2009).

According to Prastiwi, et al. (2017) stated that the results of their research indicated that the risk of secondary amenorrhea in people with chronic kidney disease who undergo HD is influenced by many factors, one of which can be caused by chronic kidney failure itself which causes disruption of reproductive hormones and uremia syndrome another is a psychological status.

3.1.1. Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Menstrual Cycle Before HD	20	100.0%	0	0.0%	20	100.0%
Menstrual Cycle After HD	20	100.0%	0	0.0%	20	100.0%

Descriptives

			Statistic	Std. Error
Menstrual Cycle Before HD	Mean		29.20	.922
	95% Confidence Interval for Mean	Lower Bound	27.27	
		Upper Bound	31.13	
	5% Trimmed Mean		29.17	
	Median		28.50	

	Variance		17.011	
	Std. Deviation		4.124	
	Minimum		23	
	Maximum		36	
	Range		13	
	Interquartile Range		6	
	Skewness		.222	.512
	Kurtosis		-.805	.992
Menstrual Cycle After HD	Mean		24.85	.682
	95% Confidence Interval for Mean	Lower Bound	23.42	
		Upper Bound	26.28	
	5% Trimmed Mean		25.00	
	Median		26.00	
	Variance		9.292	
	Std. Deviation		3.048	
	Minimum		18	
	Maximum		29	
	Range		11	
	Interquartile Range		4	
	Skewness		-.734	.512
	Kurtosis		-.076	.992

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Menstrual Cycle Before HD	.128	20	.200*	.931	20	.163
Menstrual Cycle After HD	.197	20	.041	.925	20	.125

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The results of the normality test showed that the two variables were the menstrual cycle before HD and the menstrual cycle after HD were normally distributed, namely:

p value of menstrual cycle before HD is 0.163> 0.05

p value of menstrual cycle after HD is 0.163> 0.05

So to analyze the differences in menstrual cycles before and after HD using a paired parametric statistical analysis test using Paired Sample Test.

3.1 Bivariate Analysis

3.2.1. T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Menstrual Cycle Before HD	29.20	20	4.124	.922
	Menstrual Cycle After HD	24.85	20	3.048	.682

In this output, we pay attention to the summary of the descriptive statistics of the two samples studied, namely the pre-test and post-test values. For the pre-test value, the average menstrual cycle was 29.20. Meanwhile, for the post-test score, the average menstrual cycle was 24.85. The number of respondents in the

sample of this study were 20 women with CRF. For the value of Std. Deviation (standard deviation) in the pre test is 4.124 and the post test is 3.048. Lastly is the value of Std. The mean error for the pre test is 0.922 and for the post test is 0.682.

Because the average value of the menstrual cycle in the pre-test was 29.20> 24.85, it means that descriptively there was a difference in the average menstrual cycle between the pre-test and the post-test results. Furthermore, to prove whether the difference is real (significant) or not, we need to interpret the results of the paired sample t test found in the "Paired Samples Test" output table.

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Menstrual Cycle Before HD & Menstrual Cycle After HD	20	-.044	.005

The output above shows the results of the correlation test or the relationship between the two data or the relationship between the pre-test variable and the post-test variable. Based on the output above, it is known that the correlation coefficient value is 0.044 with a significance value (Sig.) Of 0.005. Because the Sig. 0.005 <0.05 probability, it can be said that there is a relationship between the pre-test variable and the post-test variable.

Paired Samples Test

		Paired Differences					t		Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Menstrual Cycle Before HD - Menstrual Cycle After HD	4.350	5.234	1.170	1.900	6.800	3.717		.001

Paired Samples Effect Sizes

			Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
Pair 1	Menstrual Cycle Before HD Menstrual Cycle After HD	Cohen's d	5.234	.831	.312	1.334
		Hedges' correction	5.340	.815	.306	1.307

a. The denominator used in estimating the effect sizes.
Cohen's d uses the sample standard deviation of the mean difference.
Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

Based on the "Paired Sample Test" output table above, it is known that the Sig. (2-tailed) is 0.001 <0.05, then H0 is rejected and Ha is accepted. So it can be concluded that there is a difference in the average between the menstrual cycle before and after hemodialysis.

4. Conclusion

This research can be concluded as follows:

a. Most people with CRF are at an older age, the age of the respondent is 41 - 50 years, as many as 16 respondents, based on the education level of the respondent, it shows that the highest percentage is in the high

school education category of 10 respondents (50%), based on the age of the respondents' menarche shows that the highest percentage Menarche age category at 12 years of age

b. Menstrual cycle after undergoing hemodialysis in women with CRF showed that the highest percentage of the irregular menstrual pattern category was 12 respondents (60%) of the total respondents.
c. There are differences in the menstrual cycle before and after undergoing hemodialysis in women with CRF at Roemani Muhammadiyah Semarang Hospital.

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