Effect of LH Hormone on Premenstrual Syndrome in Female Adolescents at Darul Arqam Islamic Boarding School Makassar

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A B S T R A C T

This study aims to determine the effect of LH on premenstrual syndrome in young women at Darul Arqam Makassar. The research method used was the t test to see the effect of LH concentrations on young women who experienced and did not experience premenstrual syndrome. The population of this study were all young women at the Darul Arqam Makassar Islamic Boarding School. The sample used was 50 young women consisting of 25 young women with PMS and 25 young women who were not. The results showed that there was an influence of the LH hormone with the average value of respondents whose average LH value was 7.36, which was higher than that of PMS, which was 7.35. After the data is processed with the t test obtained p = 0.000 $<\alpha$ = 0.05. This means that there is a significant effect of LH hormone concentration between no PMS, mild PMS, and severe PMS. The conclusion is that there is a significant effect of the concentration of the hormone LH f2α among young women who do not have PMS and PMS and between young women who experience mild PMS and severe PMS at Darul Arqam Islamic Boarding School Makassar.

INTRODUCTION

Premenstrual syndrome (PMS) is a collection of symptoms in the form of physical and mental disorders that appear before and when menstruation arrives. Then the symptoms will disappear after the menstrual period is over. The situation experienced is that women can experience stiffness, stomach cramps or cramps, breast pain, moodiness and want to be angry (Mingzhou Gao, 2021). Premenstrual syndrome can cause depression which can lead to feelings of wanting to commit suicide, even the desire to commit violence to oneself or to others. Apart from that, a person can also have a condition where a person often wakes up in the morning feeling angry, anxious and sad.

A study suggests that the cause of the symptoms that occur in premenstrual cases is influenced by levels of the hormone prostaglandin found in the female reproductive tract which affects the regression of the corpus luteum and shedding of the endometrium (Hilary O.D. Critchley, 2020). Based on the WHO (World Health Organization) report, PMS has a higher prevalence in Asian countries compared to Western countries. This is because Western countries have understood what needs are needed by the body (Organization, 2022). It can be showed that employing a bibliometric analytic methodology, to examine the global scientific output of research on PMS and PMDD (Premenstrual Dysphoric Disorder) from 1945 to 2018 and to identify its hotspots and frontiers (Mingzhou Gao, 2021). It was in line with Surbhi and team's research which explained that The majority of the female participants (80%) were aware of PMS, whereas only 43.8% were aware of PMDD. Angryness (74.6%) and stomach bloating (48.5%) were the individuals' most prevalent emotional and somatic symptoms. More over half (53.8%) of the female participants claimed that PMS had a negative impact on their ability to concentrate, work efficiently, and produce results, and

(49.2%) claimed that PMS had a negative impact on their social life activities (Surbhi Teotia, 2020). Another study examined the impact of relaxation therapy on premenstrual symptoms which resulted it can successfully treat PMS and guarantee that all reproductive women lead productive lives (Jose A, 2022).

Survey showed that the most frequently reported symptoms were weariness (57.3%), mood changes or anxiety (64.18%), and food cravings (85.28%). There was a statistically significant rise in the incidence of forgetfulness, low libido, sleep difficulties, gastrointestinal symptoms, weight gain, headaches, sweating or hot flashes, exhaustion, changes in hair, rashes, and swelling as people aged (p's 0.001) (Liisa Hantso, 2022). Based on research on female students at SHS Batik 1 Surakarta, it was found that female students at the school sometimes asked permission to go home and some even fainted. According to data on student attendance at school, approximately 10% of female students are consistently missing, which has an impact on their academic achievement. Since parents and the community in Makassar City consider PMS to be normal, it is extremely uncommon for cases of PMS to be brought to the public health center or other medical facilities for treatment. As a result, data on the prevalence of adolescents experiencing STDs in Makassar City have not been reported or recorded. Due to the fact that these adolescents are females of childbearing or reproductive age, PMS has a significant impact on their reproductive health. If PMS is not treated effectively, it may affect the prevalence of infertility. Based on the explanation above and previous studies, there was no study yet on the influence of the LH hormone on premenstrual syndrome in young women. Thus, this study aims to reveal the influence of the LH hormone on young women who experience and do not experience premenstrual syndrome at Darul Arqam Islamic Boarding School Makassar.

LITERATURE REVIEW

Premenstrual Syndrome (PMS) are various physical, psychological and emotional symptoms related to hormonal changes due to the menstrual cycle (Pridynabilah, 2022). In general, the symptoms that come are a manifestation of the production of the hormone progesterone at the end of the menstrual cycle, closer to the arrival of the menstrual period. Symptoms of premenstrual syndrome are associated with various changes such as physical, mood and mental changes. Several theories state that the cause of PMS occurs due to an imbalance in the hormones estrogen and progesterone and changes in serotonin levels (Ribka Gavinella Sartika Sinaga, 2022) as well as research that has found the role of High Sensitivity C-creative protein (hs-CRP) in PMS. Other studies have found that PMS causes factors such as marital status, eating and drinking habits and physical activity. However, it is generally known that there are several factors that have a relationship with PMS including hormonal factors, chemical factors, genetic factors, psychological factors and lifestyle factors (Isrowiyatun Daiyah, 2021).

Luteinizing Hormone (LH Hormone) and Follicle Stimulating Hormone (FSH) are gonadotropin hormones produced by Gonadotrophin Releasing Hormone (GnRH) in the hypothalamus (Sarwono Prawiroharjo, 2011). These two hormones are hormones in the human reproductive process in both men and women in addition to the hormones estrogen and progesterone. The process by which these two hormones occur is that GnRH is released by the hypothalamus by a secretion process through the hypothalamohypophyseal portal flow which occurs every 90 to 120 minutes. On arrival at the anterior pituitary, GnRH will bind to gonadotropic cells and stimulate the release of LH and FSH.

Luteinizing Hormone is also a glycoprotein with a molecular weight of 28,000 daltons and also consists of two chains. The α chain consists of 89 amino acids while the β chain consists of 115 amino acids. The β chain also largely determines the unique biological properties and immunological behavior of the hormone. Under the influence of LH, androstendione is metabolized in the theca cells, while other androgens enter the granulosa cells.

FSH or Follice stimulating hormone and LZ or luteinizing hormone are produced by the anterior pituitary gland, a small gland located at the bottom of the brain. And basically, FSH functions to help the maturation of the egg in the follicle. Meanwhile, LH itself plays an important role after the egg is mature. LH can cause the egg to be released from the follicle and ready to be fertilized. If the lack of FSH can cause the monthly cycle to stop. Low FSH levels are also indicated by low LH levels. This LH deficiency will reduce sexual interest, heavy menstruation, insomnia, irritability, indigestion and also migraines. In order for these two hormones to be balanced, you need to stay away from alcohol, especially for couples who are in a child program. Low-dose therapy for the hormones estrogen and progesterone carried out by a doctor can also help (Suryono, 2009)

Besides affecting mood, hormone fluctuations can also affect weight, appetite, and desire for sex. Being in a state of stress, anxiety, depression, or being on a diet are several factors that can affect fluctuations in the hormone estrogen (Rani Anggraini, 2016). The function of LH is to control the menstrual cycle, control ovulation, and control basal gonadotropins.

METHODS

This research was conducted at the Darul Arqam Makassar Islamic Boarding School from March to May 2017 after obtaining the Ethical approval recommendation issued by the Postgraduate Faculty of Hasanuddin University Makassar number: 255/ H4.8.4.5.31/ PP36-KOMETIK/ 2017 May 5 2017 Sample unit (observation unit), consisting of a sample of young women who experience PMS and young women who do not experience PMS at Darul Arqam Makassar Islamic Boarding School. While the unit of analysis is the level of LH hormone in young women who experience PMS and not PMS.

This study used a cross sectional study. The population in this study were all female students at the Darul Arqam Makassar Islamic Boarding School. The number of samples taken is based on Issac and Michael's table with a significant level of 95% and based on an error rate of 1%, 5%, 10%. The total population is 25 people, the results obtained for the sample are 24 young women who experience PMS and 24 who do not experience PMS, because there is only 1 person who does not enter into the formula sample, so the researcher is sufficient and takes all as samples to 25 PMS and 25 are not. PMS, with the inclusion criteria of class XI students aged 15-17 years, students who have regular menstrual cycles (28-32 day cycle) for the last 3 months, are willing not to use drugs, both pharmacological therapies such as anti-pain drugs and non-pharmacological such as

herbs and other herbal medicines during the study, and female students who are willing to be respondents. While the exclusion criteria were female students who suffered from gynecological diseases, such as polimenerhoea, oligomenorhea, hypomenorrhoea, dysmenorrhea, leukorrhea, vaginitis, endometritis, pelvic inflammation, uterine cysts, and female students who experienced mental disorders.

The instrument used in this study was a diary sheet (LCH), a data collection questionnaire which included identity and symptoms or complaints of premenstrual syndrome. Examination of prostaglandins using a prostaglandin Enzyme Linked Immuno Sorbent Assay (ELISA) kit. After the data was collected, data processing was carried out with the help of a computer using the Excel and SPSS version 21 programs. Analysis of LH levels in adolescents with Premenstrual Syndrome was carried out using data processing using univariable, multivariable analysis.

RESULTS

Purposive sampling was used to sample the study population in accordance with the specified research goals.

Hence, only study participants who met the criteria were included in the sample. Meanwhile, the number of samples used was the minimum number of samples, namely 50 people (Anita Susanti, 2018). The sample sizes in the intervention group and control group were the same, namely 25 people each with a total sample of 50 people. After observing using LCH and laboratory examination, further data processing and analysis was carried out. The LCH sheet, which was modified to fit the specific research goals, served as the measuring instrument.

A summary of the traits of the respondents in both the PMS-experiencing and non-PMS groups was provided in the study's results. The Mann Whitney test was utilized to examine the PGF2 levels in young females. The data obtained from the results of further research were presented in the frequency distribution table of each variable. Then, the cross-tabulations and systematic data analysis were presented as follows:

1. Univariate analysis

The univariate analysis carried out aimed to determine the frequency distribution of each of the characteristics and symptoms of female adolescents who have and not PMS.

Table 4.1
Distribution of Respondents based on with and without PMS

Respondents Characteristics	Group				Total	
	PMS		Non-PMS			
	n	%	n	%	N	%
Age						
15 years old	1	4.0	1	4.0	2	4.0
16 years old	5	20.0	1	4.0	6	12.0
17 years old	19	76.0	23	92.0	42	84.0
Menarche Age						
12 years old	2	8.0	2	8.0	4	8.0
13 years old	15	600.0	14	56.0	29	58.0
14 years old	3	12.0	7	28.0	10	20.0
15 years old	5	20.0	2	8.0	7	14.0
IMT						
Thin	1	4.0	1	4.0	2	4.0
Normal	9	36.0	14	56.0	23	46.0
Overweight	14	56.0	10	40.0	24	48.0
Obesity	1	4.0	0	0	1	2.0
Menstrual cycle length						
28 days	8	32.0	4	16.0	12	24.0
29 days	5	20.0	7	28.0	12	24.0
30 days	5	20.0	6	24.0	11	22.0
31 days	2	8.0	2	8.0	4	8.0
32 days	5	20.0	6	24.0	11	22.0
Menstruation duration						
3 – 7 days	14	56.0	10	40.0	24	48.0
> 7 days	11	44.0	15	60.0	26	52.0
Menstrual blood count						
<3 x / days	0	0	0	0	0	0
3-5 x / days	23	92.0	23	92.0	46	92.0
> 5 x / days	2	8.0	2	8.0	4	8.0
Menstruation duration						
5-7 days	10	40.0	15	60.0	25	50.0
8-10 days	15	60.0	10	40.0	25	50.0
Total	25	100.0	25	100.0	50	100.0

Source: Primary Data 2017

Based on Table 1, the 25 PMS respondents with the most age group 17 years was 19 people (76%), the lowest was 15 years (4%). While of the 25 respondents who did not PMS with the most age group 17 years, namely 23 people (92%)

and the lowest was at 15 and 16 years, namely a person (4%). The most menarche age in PMS respondents, 11 years, was 15 people (60%) and the lowest, 13 years, was 2 people (8%). However, of the responders who did not experience PMS, 14 people (56%) were at menarche age 13 and two persons (8%), respectively, were at ages 12 and 15. In terms of body mass index, 14 people (56%) who reported having PMS had an overweight BMI, and 1 person (4%), who had an obese BMI, was the lowest. In contrast, 0 people (0%), who reported not having PMS, had an obese BMI. Regarding the characteristics of the respondents, the length of the menstrual cycle in PMS respondents was 28 days for 8 people (32%) and the menstrual cycle was 31 days for 2 people (8%). Respondents who did not have PMS with a menstrual cycle of 29 days were 7 people (28%) while in a cycle of 31 days there were 2 people (8%). Regarding the characteristics of the length of menstruation, PMS respondents were at most 3-7 days as many as 14 people (56%) and >7 days as many as 11 people (44%), in respondents who did not have PMS. The duration of menstruation >7 days was 15 people (60%) and respondents with long menstruation 3-7 days 10 people (40%). In the characteristics of respondents with menstrual blood of 3-5 sanitary pads per day, 23 people (92%) and with blood of 3

pads as much as 0 or none had menstrual blood 3 days, while the respondents who did not have PMS were 23 people (92%) with menstrual blood 3-5 pads per day and 0 (0%) with menstrual blood 3 pads. The characteristics of respondents with a long menstrual period in young females with the highest PMS were 5-7 days, specifically 10 people (40%) and the lowest were 15 people (60%) with a long menstruation of 8-10 days, while 15 respondents who did not have PMS have a long menstrual period of 5-7 days per day and as many as 10 people (40%) have a long menstrual period of 8-10 days.

From Table 2 it can be seen that respondents who experienced PMS and had the lowest LH levels at the age of 16 at 1.18 and the highest at 15 years at 1.40. Meanwhile, respondents who did not have PMS and had the lowest LH levels were at the age of 15 at 3.30 and the highest were at the age of 17 at 7.71.

Table 3 showed that respondents who experienced PMS and had the lowest LH levels based on the menarche group at the age of 12, namely 0.35 and the highest at the age of 13, namely 1.56. Meanwhile, the respondents did not have PMS and had the lowest LH levels at the age of 15 years with a value of 3.15 and the highest at the age of 14 years with a value of 13.47.

Table 2
Differences in LH Levels in Female Adolescents with or without PMS based on Age Group

Age	Adolescents Group	Concentration	LH
		Mean	Std Deviation
15 years	PMS	1,40	0,00
	Not PMS	3,30	0,00
16 years	PMS	1,18	0,33
	Not PMS	3,50	0,00
17 years	PMS	1,39	0,79
	Not PMS	7,71	8,46

Table 3
Differences in LH Levels in Young Women with PMS and Not PMS Based on the Menarche Group

Adolescents Menarche	Adolescents Group	Concentration	LH
		Mean	Std Deviation
12 years	PMS	0.35	0,71
	Not PMS	7.25	2,19
13 years	PMS	1.56	0,56
	Not PMS	4.93	3,42
14 years	PMS	0.97	0,65
	Not PMS	13.47	13,34
15 years	PMS	1.36	0,93
	Not PMS	3.15	1,91

Table 4
Differences in LH Levels in Female Adolescents with or without PMS based on BMI Group

Adolescents IMT	Adolescents Group	Concentration	LH
		Mean	Std Deviation
Less	PMS	1.75	1,63
	Not PMS	7.65	2,76
Normal	PMS	1.41	0,62
	Not PMS	7.74	8,83
More	PMS	1.27	0,65
	Not PMS	3.10	0,00

From table 4, it can be seen that respondents who experienced PMS and had the lowest LH levels based on the BMI group had an excess BMI that was 1.27 and the highest was a low BMI that was 1.75. Meanwhile, respondents who

did not have PMS and had the lowest LH levels had excess BMI with a value of 3.10 and the highest was normal BMI with a value of 7.74.

Table 5
Differences in LH Levels in Female Adolescents with or wothout PMS Based on Menstrual Period Groups

Haid Period	Adolescents Group	Concentration	LH
		Mean	Std Deviation
3-7 days	PMS	1.49	0,69
	Not PMS	6.27	3,76
> 7 days	PMS	1.14	0,69
	Not PMS	8.09	10,21

Table 5 illustrated that respondents who experienced PMS and had the lowest LH levels based on the menstrual duration group at >7 days, namely 1.14 and the highest at 3-7 days, namely 1.49. Whereas the respondents did not have PMS and had the lowest LH levels at 3-7 days with a value of 6.27 and the highest at >7 days with a value of 8.09.

2. Bivariate analysis
Bivariate analysis was conducted to see the differences between the two variables. In this case the variable to be analyzed is the difference in LH concentrations in the variable group of teenagers who have PMS and not PMS. Then the difference in LH concentration in the light PMS and severe PMS group variables.

Table 6
Table of Analysis of the Effect of LH Hormone Levels on Adolescents with or without PMS

Adolescents Group	Concentration of Hormone LH		P value (t test)
	Mean	Std.Deviation	
PMS	1,35	0,70	
Not PMS	7,36	8,18	0.000

Table 6 found that of the 50 respondents, 25 had PMS and 25 who did not have PMS, the average value of respondents who had LH levels was obtained, where the respondents who did not have PMS had an average LH value of 7.36, which was higher than those with PMS of 1.35. After examining the concentration of LH and the data were processed using the t test, with a value of p = 0.000 < α = 0.05. This means that there is a significant effect of the concentration of Luteinizing Hormone (LH) on PMS sufferers and those who do not suffer from PMS.

Table 7
Table of Analysis of the Effect of LH Hormone Levels on Adolescents with Mild and Severe PMS

Adolescents Group	Concentration of Hormone LH		P value (t test)
	Mean	Std.Deviation	
PMS Mild	1,69	0,72	0.037
PMS Severe	1,09	0,58	

Table 7 portrayed that of the 25 responses that experienced PMS, the average value of respondents who had LH levels was obtained where respondents with mild PMS had an average LH value of 1.69 higher than those with severe PMS of 1.09. After the LH examination was carried out and the data was processed using the t test with a value of p = 0.037 < α = 0.05. This means that there is a significant

effect of LH concentration on sufferers of mild PMS and severe PMS.

DISCUSSION

Premenstrual syndrome (PMS) are complaints that usually start a week to a few days before menstruation arrives, and disappear after menstruation begins, although sometimes it continues until menstruation stops. Premenstrual syndrome (PMS) are perceived complaints such as; anxiety, depression, mood swings, fatigue, weight gain, swelling, breast pain, cramps and back pain which can occur around 7-10 days before menstruation and peaks when menstruation occurs. PMS is a collection of physical, psychological and emotional symptoms associated with a woman's menstrual cycle. Around 80-95% of women of childbearing age experience premenstrual symptoms which can interfere with several aspects of their lives (Isrowiyatun Daiyah, 2021).

Characteristics of Respondents

The results of this study illustrate that as many as 19 people (76%) aged 17 years are a group of respondents who experience PMS more and those who do not experience PMS are 23 people (92%), this indicates that at the age of 17 years is a childbearing age that is prone to PMS and it will affect their reproductive health in obtaining offspring in the future. Based on theory (T, 2018), the factor that tends to cause PMS is age. Senja and team (2021) estimate that the prevalence of PMS is 20-40% of all women of reproductive age, the demographic range is between 14-51 years. Wahyu and team (2021) state that the age of most sufferers in Indonesia is between 25-35 years, with a tendency to increase the incidence in older age groups. Freeman stated that in adulthood there has been maturity of emotional development, where emotional development will greatly influence a person's responses and actions towards health status, many women report experiencing PMS symptoms earlier and the facts reveal that some adolescents experience the same symptoms and the same strength of PMS. as experienced by older women. The results of the study are in accordance with research conducted by Iin Husmar A (2018) it was found that there is no effect between age on the degree of severity of PMS, so the older you are the milder the degree of PMS.

Based on the results of research on menarche age characteristics, the number of respondents who experienced PMS was 11 years old (60%). Menarche is a period of hormonal and physical development that is mature enough to start the menstrual cycle. Age at menarche or age at the arrival of the first menstruation in young women is a measurement in growth and development research to assess the speed of individual reproductive maturation. Currently, a young woman gets menstruation faster, namely menarche at

the age of 10-12 years (Fatlun Indriani Adam, 2022). This is in line with research which shows that PMS occurs more frequently in the group of female students with menarche age <12 years (fast), namely 47.17% compared to menarche age ≥12 years, namely 19.82% (Cahyani, 2020). Adolescents with menarche age <12 years have a 2.3 times greater chance of PMS occurring than adolescents with menarche age ≥ 12 years.

Based on the results of the research on BMI characteristics, 15 people (60%) who experienced PMS had excess BMI. This is in accordance with the theory that the cause of PMS is an imbalance in the hormones estrogen and progesterone, which is caused by obesity because excess fat also triggers PMS (Bela Daniartama, 2021). This is in line with research (Yoga Tri, 2015) which states that the results of the analysis of the data obtained show that obese female adolescents experience PMS at 55.6% compared to female adolescents who are not obese and are affected by PMS at MAN 1 East Lampung Metro, namely 27.4% (Nistiani, 2018). The results of this study are in line with the results of research on Midwifery Academy Students in the Kudus Regency Government, which showed that there was a significant relationship between obesity in young women and PMS. The statistical test results showed a p-value = 0.000 (p <0.05) (Novita, 2018).

Analysis of Differences in Average LH Hormone Levels in PMS and Non PMS Adolescents

From the results of the study it was found that out of 50 respondents, 25 had PMS and 25 who did not have PMS, the average value of respondents who had LH levels was obtained, where the respondents who did not have PMS had an average LH value of 7.36, which was higher than those with PMS of 7.35. After the data is processed with the t test obtained p = 0.000 <α = 0.05.

Theoretically, it is explained that a normal menstrual cycle is characterized by high levels of FSH and low levels of LH, estradiol and progesterone. These high FSH levels are necessary to stimulate the growth of ovarian follicles, the synthesis of estradiol by the follicles and the proliferation of the endometrium. As the maturation process of the dominant follicle progresses in the late follicular phase, estradiol levels increase sharply. It is this increase in estradiol levels that triggers the LH surge in the middle of the menstrual cycle. This LH surge will induce the ovulation process which marks the end of the proliferative phase. The next phase is the luteal phase which is characterized by the formation of the corpus luteum under the influence of LH. Throughout the luteal phase, LH and FSH levels will continue to fall to their lowest point. If fertilization does not occur, the corpus luteum will degenerate so that the levels of estradiol and progesterone produced will decrease drastically. In a normal menstrual cycle, in the luteal phase there is a decrease in estradiol levels, if there is a slight increase in estradiol in the luteal phase, then this is what causes PMS (Suparman, 2011).

Mid-cycle (around day 14) LH production is suppressed, triggering ovulation. During the second half of the menstrual cycle, if the balance of the hormones estrogen and progesterone is stable, then PMS will not appear. If progesterone levels are not normal, serotonin levels can decrease and be depressed (Saryono, 2009). So that in the process there is a change in the secretion of the pituitary gland. This changes the secretion pattern of the pituitary gland which will cause hormone suppression events to occur either too early (around day 11) or later (around day 18).

During this time, progesterone levels will also decrease compared to estrogen levels. This imbalance causes PMS symptoms that are disturbing and even painful (Saryono, 2009).

The results of the study (Dheeva, 2015) based on LH levels and medical history obtained a median LH level of 8.19 mIU/ml, with the lowest LH level of 1.82 mIU/ml and the highest LH level of 28.74 mIU/ml , the number of subjects who had abnormal LH levels was 28.4% or a total of 21 people and the number of subjects who had normal LH levels was 71.6% or a total of 53 people, subjects who had a history of SPOK were 45.9% or a total of 34 person.

FSH and LH are produced by the anterior pituitary gland, a small gland located at the base of the brain. And basically FSH functions to help the maturation of the egg in the follicle. Meanwhile, LH itself plays an important role in triggering the release of mature egg cells. LH can cause the egg to be released from the follicle and ready to be fertilized. If the lack of FSH can cause the monthly cycle to stop. Low FSH levels are also indicated by low LH levels. This LH deficiency will reduce sexual interest, heavy menstruation, insomnia, irritability, indigestion and migraines.

Thus it can be concluded that the lower a person's LH level will cause PMS symptoms, which is because the menstrual cycle process does not run normally, it can be caused by ovary disorders, hypothalamic disorders, stress or depression, obesity, tumors that secrete estrogen, and others. other. This disorder causes the hormones that play a role in the menstrual cycle to be disrupted, these hormones are FSH, LH, estrogen and progesterone. If there is a disturbance of the hormones FSH and LH it will not cause the formation of egg cells, if so then the hormones estrogen and progesterone will also not be formed as they should. Therefore, it is expected for women of reproductive age to reduce consumption of caffeine, coffee, tea, alcohol and soda because it can reduce tension, anxiety, and insomnia.

Differences in Average LH Hormone Levels in Teenagers with Mild PMS and Severe PMS

Based on research, it was found that the average LH value for severe PMS was 1.09 while the average LH value for mild PMS was 1.69. Value p = 0.037 < α = 0.05. Many conditions or factors play a role in the occurrence of PMS in reproductive women, especially teenagers. Low levels of progesterone are thought to be the main cause of PMS. The factor associated with PMS is the increase in the ratio of estrogen to progesterone, just before the menstrual phase occurs (Sarwono, 2007). Based on the ACOG diagnostic criteria for PMS (Suparman, 2011) mild PMS is diagnostic when all criteria are met, both somatic complaints and affective complaints, whereas Severe PMS is diagnosed if the patient experiences 5 main complaints such as headache, acne, breast pain, back pain, flatulence and muscle joints and includes one of the 4 main complaints such as feeling depressed, useless, thoughts of real inferiority, anxiety or tension marked feelings of alienation or marginalization, significant affective lability (feeling suddenly sad or tearful, being sensitive to rejection, and anger or irritability)

Several studies have shown that an increase in this ratio is associated with a decrease in brain endorphins. Levels of brain endorphins are known to increase feelings of pleasure. Increased levels of estrogen also have an impact on concentrating the concentration of aldosterone, a hormone that can retain water and sodium. These changes cause changes in endomorphin, prolactin, and aldosterone which can exacerbate the physical and psychological symptoms of

PMS. Anxiety and restlessness can be helped by undergoing relaxation exercises and meditation. Usually given vitamin B6, calcium and magnesium. Other studies show that deficiencies of calcium, magnesium, manganese, vitamins B and E, and linolenic acid and their metabolites are associated with PMS. Unhealthy lifestyle, especially nutritional factors also play a role in causing PMS. An unbalanced nutritional pattern in the form of a diet high in salt and sugar, low in vitamins (especially vitamin B6, vitamin E, and vitamin C) and minerals (magnesium, iron, zinc, manganese) and foods with little fiber content can cause PMS. Lack of exercise and lack of physical activity causes PMS to get worse. The incidence of PMS is around 80%. Epidemiological studies show that approximately 20% of women of reproductive age experience moderate to severe PMS symptoms. About 3-8% have severe symptoms called dysphoric disorder (PMDD, Premenstrual Dysphoric Disorder). In Indonesia, the prevalence of premenstrual syndrome in female students in Surabaya is 39.2%, experiencing severe symptoms and 60.8% experiencing mild symptoms which results in a decrease in student learning concentration (Halbreich, 2007). This is in line with Tenkir's research, 2002 which stated that the results of a survey of 242 students at Jimma University, Ethiopia, with an average of 18 years found that 99.6% of the participants experienced menstrual syndrome, a small proportion of respondents experienced one of the many symptoms of premenstrual syndrome during menstrual cycle in the last 12 months.

CONCLUSION

Based on the results of the research and discussion above, it can be concluded that there are differences in LH levels in young women who experience PMS. In this study the researchers wanted to strengthen the existing hypothesis and opinion that the LH hormone has an influence on premenstrual syndrome. It is important to understand premenstrual syndrome in young women so that they can manage and understand their condition so that depression or psychological disorders do not occur. For health workers, especially midwives who are at the Puskesmas level as midwives in the community, it is hoped that they can conduct counseling about premenstrual syndrome for young women so that they can understand PMS and know what young women can do if they experience this so as to reduce gsyndrome.

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