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SERUM RELATIONSHIP 25-HYDROXY VITAMIN D [25(OH)D] WITH PRIMARY DYMENORHEA IN ADOLESCENT WOMEN IN PALEMBANG

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Abstract

dysmenorrhea is the most common gynecological problem in women of all ages and races with peak prevalence occurring in the late teens or early twenties . Primary dysmenorrhea can be caused by several factors such as age, family history, body mass index, socioeconomic status, education, smoking, alcohol use, and the potential role of a woman's daily diet . Primary dysmenorrhea is considered one of the major problems in women and public health as a major cause of chronic pelvic pain and has a devastating effect on a woman's life, health and quality of life . Micronutrients including vitamins and minerals are needed to maintain the body's physiological functions. Deficiencies of micronutrients can have a variety of negative effects on human health . Vitamin D receptors are located in the human uterus, and vitamin D can inhibit prostaglandin synthesis . The purpose of this study was to determine the relationship between serum levels of 25-hydroxy vitamin D [25(OH)D] with primary dysmenorrhea . This study used an analytic observational design with a *case control approach* . A total of 117 respondents involved in In this study , sample collection was carried out in April- June 20 22 , with amount each sample as much 58 case samples and 59 control samples met the inclusion criteria . Examination of serum levels of 25-hydroxy vitamin D [25(OH)D] using the ELFA method and then the results are recorded in sheet observation , data analysis using statistical tests *chi square* . From the results In this study , median serum levels of 25-hydroxy vitamin D [25(OH)D] were found in adolescents 12.75 ng/ mL more low compared to control 14.10 ng/m L , a analysis serum 25 -hydroxy vitamin D [25(OH)D] levels done use analysis ROC curve and obtained point parameters cut best ie ≤ 10.30 ng/ mL . The conclusion from this research is there is significant relationship _ between serum 25-hydroxy vitamin D [25(OH)D] levels with incident primary dysmenorrhea with p- value = 0.001.
Key words : serum levels of 25-hydroxy vitamin D [25(OH)D], primary dysmenorrhea

Abstract

Primary dysmenorrhea is the most common gynecological problem in women of all ages and races with a peak prevalence occurring in the late teens or early twenties. Primary dysmenorrhea can be caused by several factors such as age, family history, body mass index, socioeconomic status, education, smoking, alcohol use, as well as the potential role of a woman's daily diet. Primary dysmenorrhea is considered to be one of the main problems in women and is a major public health cause of chronic pelvic pain and has an adverse effect on a woman's life, health and quality of life. Micronutrients including vitamins and minerals are needed to maintain the body's physiological functions. Micronutrient deficiencies can have various negative effects on human health. Vitamin D receptors are located in the human uterus and vitamin D can inhibit prostaglandin synthesis. The purpose of this study was to determine the relationship between 25-hydroxy vitamin D [25(OH)D] serum levels and the incidence of primary dysmenorrhea . This study used an analytic observational design with a case-control approach. A total of 117 respondents were involved in this study, the sample collection was conducted in April- June 2022, with a total sample size of 58 case samples and 59 control samples that met the inclusion criteria. Examination of serum 25-hydroxy vitamin D [25(OH)D] levels used the ELfA method and then the results were recorded in the observation sheet, data analysis used the chi-square statistical test. From the results of this study, it was found that the median serum 25-hydroxy vitamin D [25(OH)D] level in primary dysmenorrhea was 12.75 ng / mL lower than the control was 14.10 ng/mL The analysis of serum 25- hydroxy vitamin D [25(OH)D] levels was carried out using ROC curve analysis and the best cutoff point parameter was ≤ 10.30 ng/ mL. This study concludes that there is a significant relationship between 25-hydroxy vitamin D [25(OH)D] serum levels and the incidence of primary dysmenorrhea with a value of p = 0.001.
Keywords: Serum 25-hydroxy vitamin D [25(OH)D], primary dysmenorrhea

1. INTRODUCTION

Dysmenorrhea is defined as painful cramps and one of the leading causes of pelvic pain, and is the most common gynecological problem in women of all ages and races with peak prevalence occurring in the late teens or early twenties [1]. Primary dysmenorrhea occurs in women of reproductive age by 17-81%, the prevalence of moderate to severe dysmenorrhea is 28% and 22%, respectively Younger women experience greater pain [2,3]. Reported prevalence varies widely _ start from 17-90%, some woman experience relatively minimal pain _ _ _ in a manner significant limited in do daily [4]activities

dysmenorrhea severe is identified in only 12 to 14% of cases, the impact on quality of life of dysmenorrhea causes high rates of school and work absenteeism, as well as reduced quality of life and only 27.9% seek medical help . This certainly affects academic performance in matters such as concentration, sports, socialization, and school achievement[5]

Pathogenesis of primary dysmenorrhea According to several studies , the influence of prostaglandins is involved in causing contractions, presumably increasing the production of prostaglandins and leukotrienes from the myometrium in the final phase of ovulation, fatty acids are produced and accumulated in the cell membrane. At the end of the cycle, decline Progesterone levels send signals for the onset of menstruation and the release of fatty acids including arachidonic acid as a precursor to the production of dinoprostone (prostaglandin E2), carboprost (prostaglandin F2α) and leukotrienes, these substances cause myometrial contractions and cause pain during menstruation.[67]

Primary dysmenorrhea can be caused by several factors such as age, family history, body mass index, socioeconomic status, education, smoking, alcohol use, and the potential role of a woman's daily diet can exacerbate the incidence of dysmenorrhea. [8].

Micronutrients including vitamins and minerals are needed to maintain the body's physiological functions. Deficiencies of micronutrients can have a variety of negative effects on human health. Evidence suggests that in women of reproductive age, deficiencies of iron, folate, vitamin D, and zinc are particularly prevalent because the reproductive role of women results in greater requirements for the intake of several micronutrients, micronutrients playing antioxidant and anti-inflammatory roles that are effective in anti-inflammatory activities . - Biological inflammation of the body [9].

Fat-soluble vitamin D acts as a *prohormone* and stimulates intestinal absorption of calcium and maintains phosphate levels . Vitamin D receptors are located in the human uterus and can inhibit the synthesis of prostaglandins, calcitriol (1,25 [OH]2D) can reduce levels of pro-inflammatory cytokines such as interleukin 6 and necrosis factor and regulate the expression of key genes involved in the prostaglandin pathway thus reducing the biological activity of prostaglandins [10, 11, 12].

Deficiency of vitamin D can occur due to inadequate skin irradiation, intake insufficient food or from disturbances in metabolic activation vitamin. Vitamin D metabolites were used to assess serum vitamin D levels and metabolism. Specifically, 25-hydroxy vitamin D is referred to as 25(OH)D and 1,25-dihydroxy vitamin D. The 25(OH)D metabolite is estimated to have a half-life of about 2-3 weeks and provides a measure of vitamin D that comes from food sources and supplements. as well as from leather production[13,14]

A number of effort has done For reduce incident Primary dysmenorrhea and its consequences . There is strong evidence showing that the effect of vitamin D can reduce pain severity in dysmenorrhea [15]. Study This aim For know connection serum 25-hydroxy vitamin D [25(OH)D] levels with primary dysmenorrhea in adolescents princess in the city of Palembang .

2. METHOD

This study used an analytic observational design with a *case control approach* [16]. Blood sampling was carried out in junior high schools, high schools and colleges high in Palembang City. The population in this study were all teenagers daughter with 12-20 years old with primary dysmenorrhea and normal . Samples were taken by *consecutive sampling* as many as 61 respondents . The data collected is primary data directly taken through observation . To determine the diagnosis use completed questionnaire _ tested validity and reliability , for determine dietary pattern status using vitamin D *food frequency questionnaire (FFQ)* then analyzed use application *Nutrisurvey* [17].

serum levels of 25-hydroxy vitamin D [25(OH)D] was carried out at the Palembang BBLK Laboratory using the e EL F A method. All data collected was recorded on sheet observation . Data analysis used *the chi square statistical test* with confidence level (95% CI) and error rate (α=5%) .

3. Results

3.1 Characteristics Sample Study

Characteristics respondent in this research namely age , degrees painful primary dysmnorrhea , age at menarche, body mass index , history family and dietary patterns . Distribution results frequency can seen in the table below :

Table 1. Characteristics Respondents

Variable	Category	Primary dysmneorrhea				p- *value* (CI)
		Yes		No		
		n	%	n	%	
Age Young Women	12-13 Year	5	8.62	8	13.56	
	14-17 Years	25	43.10	30	50.85	0.343
Total	18-20 Years	28	48.28	21	35.59	
		58	100	59	100	
Dysmenorrhea Pain Degree						
	No Pain	0	0.00	59	54.43	< 0.001
Total	Moderate Pain	45	77.50	0	0.00	
	Severe Pain	13	22.41	0	0.00	
Age of Menarche		58	100	59	100	
Total	≥ 12 Years	50	86.21	53	88.03	0.546
	< 12 Years	8	13.79	6	11.97	
Body Mass Index		58	100	59	100	
	Very thin	5	8.62	7	11.86	0.075
	Thin	15	25.86	4	6.78	
Total	Normal	32	55.17	42	71.19	
	Fat	1	1.72	2	3.39	
Family History	Obesity	5	8.62	4	6.78	
		58	100	59	100	
Total						
	There is	39	67.25	35	59.32	0.374
Diet Patterns	History	19	32.76	24	40.68	
	No History					
Total		58	100	59	100	
	deficiency	54	93.10	52	88.14	0.357
	Sufficiency	4	6.90	7	11.86	
		58	100	59	100	

Based on results distribution frequency in table 1. above is known that age teenager most daughters _ is at at the age of 18-20 years that is as many as 49 respondents (41.88%) consisting out of 28 respondents (48.28%) were teenagers daughter with primary dysmenorrhea and 21 respondents (35.59%) were teenagers daughter with No primary dysmenorrhea . Age mean value respondent between the two groups primary dysmenorrhea and not primary dysmenorrhea is comparable with p- value = 0.343.

Based on results distribution frequency in table 1. above is known that degrees painful primary dysmenorrhea in adolescents most daughters _ to be at without painful that is as many as 59 respondents (54.43%) of which 59 respondents (100%) experienced without painful with No primary dysmenorrhea . Degree average value painful primary dysmenorrhea between the two groups primary dysmenorrhea and not primary dysmenorrhea is comparable with p value = < 0.001.

Based on results distribution frequency in table 1. above is known that age of menarche in adolescents daughter most known _ are at the age of menarche ≥ 12 years that is as many as 103 respondents (88.03%) consisting of 50 respondents (86.21%) menarche age ≥ 12 years with primary dysmenorrhea and 53 respondents (89.83%) menarche age ≥ 12 years with no primary dysmenorrhea. The mean age of menarche between the two groups primary dysmenorrhea and not primary dysmenorrhea is comparable with p- value = 0.546.

Based on results distribution frequency in table 1. above is known body mass index teenager daughter most known _ have a normal body mass index _ as many as 74 respondents (63.25%), consisting of 32 respondents (55.17%) normal body mass index with primary dysmenorrhea and 42 respondents (71.19%) normal body mass index with no primary dysmenorrhea. The average value of body mass index between the two groups primary dysmenorrhea and not primary dysmenorrhea is comparable with p- value = 0.075.

Based on results distribution frequency in table 1. above is known that history family teenager most daughters _ be on there history that is as many as 74 respondents (63.25%) consisting of 39 respondents (67.25%) there is history of primary dysmenorrhea and 35 respondents (59.32%) were present history of primary dysmenorrhea.

Based on results distribution frequency in table 1. above is known that adolescent diet _ most daughters _ is at are in deficiency that is as many as 106 respondents (90.60%) consisting of 54 respondents (93.10%) experienced deficiency with primary dysmenorrhea and 52 respondents (88.14%) experienced deficiency with No primary dysmenorrhea . The mean value of the dietary pattern between the two groups primary dysmenorrhea and not primary dysmenorrhea is comparable with p- value = 0.357.

3.2 Analysis Statistics

Analysis statistics on this study was conducted with use procedure statistics descriptive (mean, median, frequency , standard deviation , minimum and maximum). Normality test done with the *Mann Whitney* test used For test variable continuous with normal and abnormal distribution . Analysis *receiver operating characteristic curve* (ROC) is used For determine point cut parameters. Nominal variables were analyzed with using the *chi square* test .

3.3 Serum 25-Hydroxy Vitamin D [25(OH)D] Levels

In this research for measure rate serum 25-hydroxy vitamin D [25(OH)D] in teenagers daughter used method *enzyme linked fluorescent assay* (ELFA) with take sample juvenile venous blood daughter primary dysmenorrhea and normal. Measurement results rate serum 25- hydroxy vitamin D [25(OH)D] shared into 4 categories[18] that is

deficiency , insufficiency , deficiency and toxicity , the result can seen in the table below :

Table 2 Mean serum levels of 25-Hydroxy Vitamin D [25(OH)D] in female adolescents with Incident Primary Dysmenorrhea and Control

Serum levels 25-Hydroxy Vitamin D [25(OH)D] (ng/m L)	Primary Dysmorrhea	Normal
Average (±SD)	13.81 ± 5.07	16.06 ± 6.73
Median	12.75	14.10
Range (min.- max.)	7.40 – 28.00	10.00 – 52.90

From table 2 above from results analysis is known that mark serum levels of 25- hydroxy vitamin D [25(OH)D] said tall if > 10.30 ng/mL and low If ≤ 10.30 ng/ mL, the median serum level of 25 - hydroxy vitamin D [25(OH)D] in the primary dysmenorrhea of 12.75 ng/mL meaning in groups _ primary dysmenorrhea have serum levels of 25-hydroxy vitamin D [25(OH)D] tall > 10.30 ng/mL and in the normal group the median serum level is 25 - hydroxy vitamin D [25(OH)D] is 14.10 ng/mL which is also high > 10.30 ng/mL and minimum- maximum values in groups primary dysmeorrhea namely 0 7.40 – 28.00 with a mean value of 13.81 ± 5.07 while in the normal group , namely the minimum-maximum 10.00 – 52.90 with an average value of 16.06 ± 6.73 .

In this study the results of the normality test *Mann Whitney* shows normally distributed data , so stated that there is meaningful difference _ between rate serum 25- hydroxy vitamin D [25(OH)D] group primary dysmenorrhea and groups control .

3.4 Connection serum levels of 25-Hydroxy Vitamin D [25(OH)D] with incident Primary dysmneorrhea based on ROC

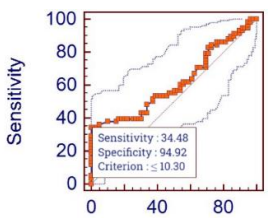

Figure 1. ROC curve for concentration serum 25-Hydroxy Vitamin D [25(OH)D] in predict primary dysmnorrhea ≤ 10.30 ng/mL (sensitivity 34.48%, specificity 94.92%)

The AUC value (*Area under the ROC curve*) will be recognized as good if area close to 1. The criteria for interpreting the AUC value are as follows following: 0.5–0.6 = very weak, 0.6–0.7 = weak, 0.7–0.8 = moderate, 0.8–0.9 = well, 0.9–1 = Very good [19]. The criteria for interpreting the accuracy score category are as follows: values of 50–60% (very weak), 60–70% (weak), 70–80% (moderate), 80–90% (strong), and 90–100% (very strong) .

Analysis serum levels of 25- hydroxy vitamin D [25(OH)D] done use analysis curve characteristics operation receiver (KOP/ROC) and point parameters are obtained cut best that is ≤ 10.30 ng/mL , predict primary dysmenorrhea by serum levels of 25 - hydroxy vitamin D [25(OH)D] only 34.48% sensitivity and 94.92% specificity , with AUC value of 0.615.

sensitivity value on the ROC curve is more low compared to mark specificity it means _ proportion serum levels of 25- hydroxy vitamin D [25(OH)D] in detect primary dysmenorrhea is No so influence happening primary dysmenorrhea , meanwhile mark specificity show that proportion serum levels of 25- hydroxy vitamin D [25(OH)D] in identify people do not pain (normal) is 94.92%.

3.5 Connection serum levels of 25-Hydroxy Vitamin D [25(OH)D] with incident Primary dysmneorrhea

Analysis bivariate done with using the *chi square* test where level of confidence (95% CI) and level of error (α = 0.05) statistical test conclusions ie if the value of ρ < α means there is a relationship between serum levels of 25-hydroxy vitamin D [25(OH)D] in teenagers daughter with primary dysmenorrhea and if the value of ρ > α means there is no relationship meaning serum levels of 25-

hydroxy vitamin D [25(OH)D] in teenagers daughter with primary dysmenorrhea . Statistical test results *chi square* can seen in the table below *:* _

Table 3 Relationship Serum levels of 25-Hydroxy Vitamin D [25(OH)D] (ng/mL) in young women with Incident Primary Dysmenorrhea and Control

levels of 25-Hydroxy Vitamin D [25(OH)D] (ng/mL)	Primary Dysmenorrhea				p-values	OR
	Yes		No			
	n	%	n	%		
≤ 10.30	20	34.48	3	5.08	0.001	9.82
>10.30	38	65.52	56	94.92		
Total	58	100	59	100	100	

From table 3. above is known that there is respondent as much 94 subjects (80.34%) with primary dysmenorrhea cases of 38 respondents (65.52%) were greater than those without primary dysmenorrhea of 56 respondents (94.92%).

Analysis results in a manner significant show serum levels of 25- hydroxy vitamin D [25(OH)D] in teenagers daughter with primary dysmenorrhea more low compared to control and present significant relationship _ between serum levels of 25- hydroxy vitamin D [25(OH)D] with preeclampsia with p- value 0.001.

4. Discussion

4.1 Characteristics Respondents

Based on table 1. characteristics age most respondents _ are of age teenager most daughters _ is at at the age of 18-20 years that is as many as 49 respondents (41.88%) consisting out of 28 respondents (48.28%) were teenagers daughter with primary dysmenorrhea and 21 respondents (35.59%) were teenagers daughter with No primary dysmenorrhea . At this age is age productive in women , therefore the incidence highest in cases primary dysmenorrhea in women happens with age late teens [1]. The results of this study also have similarity with Burnet and Lemyre's research that incident more primary dysmenorrhea increases in adolescents compared to with woman who has ever gave birth[20]

On the characteristics of the degree painful respondents (table 1) most of the respondents own degrees painful the most common primary dysmenorrhea to be at without painful that is as many as 59 respondents (54.43%) of which 59 respondents (100%) experienced without painful with No primary dysmenorrhea . This is appropriate with stated theory _ that the onset of pain Primary dysmenorrhea usually own temporal pattern is clear and can be predicted be marked with pain at the moment before and early happening menstruation , pain can lasts 8-72 hours and is the most severe happened on the day first and second menstruation and can spread down the back up to the thigh [21].

Based on table 1. characteristics age of menarche in adolescents daughter most known _ are at the age of menarche ≥ 12 years that is as many as 103 respondents (88.03%) consisting of 50 respondents (86.21%) menarche age ≥ 12 years with primary dysmenorrhea and 53 respondents (89.83%) menarche age ≥ 12 years with no primary dysmenorrhea . this is appropriate with the stated theory[22] that age of menarche <12 years can increase risk happening primary dysmenorrhea , these findings are also in agreement with study previously that menarche is over beginning increase risk happening primary [23]dysmenorrhea

Based on table 1. characteristics body mass index teenager daughter most known _ have a normal body mass index _ as many as 74 respondents (63.25%), consisting of 32 respondents (55.17%) normal body mass index with primary dysmenorrhea and 42 respondents (71.19%) normal body mass index with no primary dysmenorrhea. this is appropriate with stated theory _ that the amount of fat in more body _ low will influence normal ovulation and cycles menstruation with thereby cause excessive release of prostaglandins (PGs). [24]. Meanwhile

, theory other state that excess body mass index _ cause happening dysmenorrhea Because there is excess fat tissue resulting in vascular hyperplasia blood in the reproductive organs woman [15].

Based on table 1. characteristics history family most respondents _ be on that history family teenager most daughters _ be on there history that is as many as 74 respondents (63.25%) consisting of 39 respondents (67.25%) there is history of primary dysmenorrhea and 35 respondents (59.32%) were present history of primary dysmenorrhea . this is appropriate with theory [25] who stated that factor risk happening primary dysmenorrhea is history positive family . _

Based on table 1. characteristics adolescent diet _ most daughters _ is at are in deficiency that is as many as 106 respondents (90.60%) consisting of 54 respondents (93.10%) experienced deficiency with primary dysmenorrhea and 52 respondents (88.14%) experienced deficiency with No primary dysmenorrhea , findings in research is almost The same with research conducted _ [8] that level severity dysmenorrhea is one of them is role potential daily diet women , deficiency nutrition is factor the most important thing you can bother axis hypothalamus - pituitary - ovarian, nutrition which is not sufficient cause change rate hormone Because decrease level energy .

4.2 Analysis Relationship between Serum Levels of 25-Hydroxy Vitamin D [25(OH)D] with Incident Primary Dysmenorrhea

In This study consisted of 117 subjects _ of 58 subjects with primary dysmenorrhea and 59 normal subjects were performed inspection rate serum 25- hydroxy vitamin D [25(OH)D] with use ELFA method . From the results In this study (Table 2), the median serum level of 25 - hydroxy vitamin D [25(OH)D] was obtained . in teenagers daughter with dysmenorrhea ≤ 10.30 ng/mL and a median serum level of 25- hydroxy vitamin D [25(OH)D] in case 12.75 of results the found that serum levels of 25- hydroxy vitamin D [25(OH)D] more low in adolescents daughter with primary dysmenorrhea if compared to with teenager daughter No primary dysmenorrhea . On research previously found _ same thing _ that is that rate mark serum 25-hydroxy vitamin D [25(OH)D] more low happens to teenagers daughter with primary dysmenorrhea compared with normal control it is based on on exists significant correlation _ between rate serum 25-hydroxy vitamin D [25(OH)D] and decreased indicated vitamin D levels exists role vitamin D deficiency in the group primary [25]dysmenorrhea . A number of study show that low rate serum 25-Hydroxy vitamin D [25(OH)D] can cause happening primary [6]dysmenorrhea .

4.3 Analysis Effect of *Klotho* Serum Levels with Incident Primary Dysmenorrhea based on ROC

In this study used blood serum teenager daughter For see concentration serum 25-hydroxy vitamin D [25(OH)D] based analysis ROC curve (Fig. 4.1) shows that rate serum 25-Hydroxy vitamin D [25(OH)D] can predict primary dysmenorrhea with AUC value = 0.615 measurements analysis ROC curve is done with using a statistical program stat and got mark optimum *cut-off point* ≤ 10.30 ng/mL with mark sensitivity 34.48 and specificity 94.92.

Area under the curve (AUC) is an area under *the receiver operating characteristic* (ROC). ROC is a curve resulting from the tug-of-war between sensitivity and specificity at various intersections. The AUC value is theoretically between 0 and 1. The AUC value provides an overview of the overall measurement of the suitability of the model used. The larger the area under the curve, the better the variables under study are in predicting events 32.

In In this study, the AUC value was 0.615, which is significant in a diagnostic test mark the accuracy obtained is 0.6–0.7 that is weak .

Measurement analysis ROC curve is done with using the Stata program and obtained mark *cut off* best ie ≤ 10.30 ng/mL with mark sensitivity 34.48% and specificity 94.92%, value sensitivity with the Stata program this is obtained better in comparison with use another program, therefore that's researcher more choose using the Stata program inside know mark *cut off* serum 25- hydroxy vitamin D [25(OH)D] levels .

Based on the ROC curve (Fig. 1) is known best limit rate For serum levels of 25- hydroxy vitamin D [25(OH)D] man For identify existence primary dysmenorrhea with mark ie ≤ 10.30 ng/mL with sensitivity only 34.48% and a specificity of 94.92%, the sensitivity value on the ROC curve is higher low compared to mark specificity it means _ proportion serum levels of 25- hydroxy vitamin D [25(OH)D] ie ≤ 10.30 ng/mL in detect DP is only of 34.48%, meanwhile mark specificity show that proportion serum levels of 25- hydroxy vitamin D [25(OH)D] in identify people do not pain (normal) is 94.92%.

Primary dysmenorrhea has effect bad for health a women , quality life and limitations activity everyday , quality low sleep _ as well as in a manner negative influence atmosphere heart so that can cause depression , stress and anxiety [2].

The findings in this study are in line with the research[15] who found that serum levels of 25-hydroxy vitamin D [25(OH)D] were associated with primary dysmenorrhea as indicated by differences in serum vitamin D concentrations between the primary dysmenorrhea group and the control group .

The results of this study show that there is significant relationship _ between serum 25-hydroxy vitamin D [25(OH)D] levels with primary dysmenorrhea . Teenager daughter with Serum levels of 25-hydroxy vitamin D [25(OH)D] ≤ 10.30 (ng/mL) have a risk of 9.82 times to experience primary dysmenorrhea compared to young women who have serum levels of 25-hydroxy vitamin D [25(OH))D] > 10.30 (ng/mL) . Serum levels of 25- hydroxy vitamin D [25(OH)D] in teenagers daughter in this research shows more rate _ low in adolescents daughter with primary dysmenorrhea compared with teenager princess who doesn't experience primary dysmenorrhea in research .

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5. Conclusion

Serum levels of 25- hydroxy vitamin D [25(OH)D] in teenagers daughter with based primary dysmenorrhea analysis ROC curve is obtained mark best ≤ 10.30 ng/ mL . Average serum levels of 25- hydroxy vitamin D [25(OH)D] on groups case more low compared to groups control .

From analysis ROC curve is known serum levels of 25- hydroxy vitamin D [25(OH)D] No so influence happening primary dysmenorrhea meanwhile from results data analysis using *chi square* test obtained serum levels of 25- hydroxy vitamin D [25(OH)D] own significant relationship _ with incident primary dysmenorrhea .

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