Correlation of Pregnancy Stage And Gingiva Status of Pregnant Woman Who Visited Rsud Lebong-Bengkulu

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ABSTRACT

Background : One of the diseases of pregnant women that still have high prevalence is periodontal tissue disease, which is pregnancy gingivitis. Pregnancy gingivitis is a gingival inflammation that occurs during pregnancy. Plaque and hormonal are the causes of pregnancy gingivitis.

Research Objectives: To prove a correlation of pregnancy stage and the gingival status of pregnant women who visited Hospital of Lebong-Bengkulu.

Research Methods: This research is an analytic survey. This research conducted on 9th November to 9th December 2017 at the Gynecologist Poly of RSUD Lebong-Bengkulu. The sample is calculated based on Slovin Formula and sampling are Purposive Sampling. The Gingival Index (GI) is an index used to measure the severity of gingival inflammation from the subjects of the research. The results of this research then tested using a parametric test with 95% confidence interval and p <0.05 considered as significant number.

Research Results: The results of analysis with crosstabulation showed pregnancy gingivitis more suffered by pregnant women in the third trimester which is as much as 53,4%. Moreover, the result of analysis with parametric test of Pearson correlation showed the correlation of pregnancy stage with gingival status of pregnant mother showed significance value as P=0.000.

The Conclusion: There is a significant correlation between Pregnancy stage with the pregnant women who visited Hospital of Lebong-Bengkulu.

Keywords : Pregnancy Gingivitis, Pregnant Women, Pregnancy Stage, and Gingival Index

INTRODUCTION

Health efforts are every activity and series of activities conducted which are done as integratedand sustainable way to maintain and improve public health in the form of disease prevention, health promotion, disease treatment, and health restoration by government and society[1]. Maternal health quality is a part of the health effort. According to Regulation of the Minister of Health in the Republic of Indonesia No 43, 2016 about Minimum Service Standards of Health Sector on Article 2 Paragraph 2 that stated every pregnant woman gets antenatal services based on the standard[2]. Antenatal care is a health service by themedical worker for the mother during her pregnancy,it is carried out with the standard of service which is specified in the standard of midwifery services[3].

Pregnancy is a condition that occurs to women who have an embryo or fetus that is developing in their body, after the merge of ovum and spermatozoa. The period of pregnancy usually associated with many physiological changes that affect the endocrine system, cardiovascular and often followed by unusual behavior changes, mood or attitude. Some physical and physiological changes that occur during pregnancy

affect every major system of the body and as the result it affects some localized physical changes in various parts of the body including the oral cavity[4].

The main factors that affecting periodontal disease in pregnancy are plaque and bacteria. Gingival changes that commonly happened are associated with poor oral hygiene and local irritation especially plaque bacterial flora. Plaque is a layer of organic material attached to the tooth surface along with bacterial colonies. Plaque will always be formed even shortly after dental cleansing. If someone let it be there in a long time, plaque can cause tartar and gingivitis[5].

Gingivitis is the most common periodontal disease during pregnancy. Gingivitis is reported to occur between 30% until 70% of all pregnant women[6]. The emergence of swelling gums and gum infections in pregnant women is 50-70% and pregnancy tumors is10% [7]. The prevalence of gingivitis in 42 pregnant women at Puskesmas Depok I Sleman was 83,3% [8].

Significant difference between pregnancy age and the gingival condition with percentage in first trimester, the total number of pregnant women who suffer from gingivitis are 27,5%, in trimester 2 number of pregnant women suffering from gingivitis are 35%, trimester 3 number of pregnant women suffering from gingivitis are 37,5% [9]. Pregnancy gingivitis generally begins to appear in the second month of pregnancy and get worsens as the pregnancy progresses before reaching its peak in the eighth and ninth months[10].

The hormonal changes and vascular that accompany pregnancy often worsen the inflammatory response to that local irritant[10]. During pregnancy there is a change in the maintenance of oral hygiene which is usually caused by the emergence of nausea, vomiting, and the fear of brushing teeth because of the emergence of bleeding gums or mother is too tired with pregnancy so they are lazy to brush their teeth[11]. This situation by itself will increase the buildup of plaque that worsen the hygiene of the teeth and mouth of pregnant women. Gum infections can cause early birth and low birth weight. Periodontitis in pregnant women is a risk factor for infants with low birth weight and premature birth. The status of maternal gingiva of women who gave birth to babies with low birth weight (LBW) and Premature is worse than the mother who gave normal birth[12].

RSUD Lebong is the only Hospital in Lebong District[13]. RSUD Lebong consists of 6 polyclinics,they are general poly, internal disease poly, obstetricians' poly, child poly, TB poly, and dental poly. According to Lebong Hospital records data, the number of pregnant women who visits obstetricians' Poly in Lebong Hospital in 2017 increased dramatically as the arrival of Specialist Doctors (contract) from other districts. In April 2017, there were 138 pregnant women who visited Lebong Hospital. That number consists of first trimester pregnant women 32 people, 42 women in second trimester, and 64 women from third trimester. From the clinical data obtained from the last week of April 2017 with a total sample of 24 pregnant women at Lebong Hospital, 12 gingivitis were obtained, 8 were of moderate gingivitis and 4 had mild gingivitis.

The purpose of this study is to find out the age of pregnancy and gingival status in pregnant women who visit the Lebong Hospital - Bengkulu. It is found that there is correlation between pregnancy age and gingival status in pregnant women who visited Lebong Hospital - Bengkulu. The benefits of this study are expected to contribute scientific insights about dental health which specifically related to the correlation of pregnancy age with gingival status in pregnant women. Also, as reference materials in campus PoltekkesKemenkes Yogyakarta. Lastly, to provide information for medical workers to provide information to pregnant women, so that they understand the importance of taking care of oral and dental health during pregnancy.

METHOD

This research used Analytical Survey approach with Cross Sectional data[14]. The independent variable in this study is pregnant mother's age and the dependent variable in this study is gingival status in pregnant women who visited Lebong-Bengkulu General Hospital. The population in this study were all pregnant women who visited obstetricians' poly of RSUD Lebong. The sampling technique used is Purposive Sampling

Technique, which thesamples are 103 pregnant women. The study was conducted on 6th November to 6[th]December 2017 and took place in obstetricians' poly of RSUD Lebong-Bengkulu. Operational Definition in this study is the age of pregnancy and Gingival Status. The pregnancy age is divided into 3 trimester, which aretrimester 1 (0-3 months gestational age) trimester 2 (4-6 months gestational age) and trimester 3 (7-9 months gestational age) with interval scale used. Pregnancy gingivitis is an inflammation that occurs in the gum tissue of pregnant women. To measure the severity of gum inflammation, it used gingiva index (GI)[15]. The value or score of the gingival index can be divided into 4, they are: Score 0 (normal Gingiva), Score 1 (Light Inflammation), Score 2 (Medium Inflammation) Score 3 (Scale Heavy) with interval scale used.

The instrument used in this study is a form of examination of gingival status. The examination form of gingival status is used to see the value of gingival inflammation of pregnant women. Based on data of normality test using Kolmogorov, it is found that the significance value is 0,200. Because P = 0,200> 0,05, it means the data used is in normal distribution. Data analysis in this study used Pearson correlation parametric test which is the analysis used to calculate the relationship of two variables. The data used in this test should be quantitative or parametric scale in interval or ratio[16].

RESULT OF THE RESEARCH

Table 3. Table of distribution based on maternal age

Age of Respondent (Years)	Total	Percentage %
15-24	26	25,2
25-34	63	61,1
35-44	14	13,7
Total	103	100

Table 3 shows that most respondents aged between 25-34 years were 63 respondents (61.1%). The fewest respondents were between 35-34 years old as many as 14 respondents (13.7%).

Table 4. Table of distribution by gestational age per month

Age of pregnancy (Months)	Total	Percentage %
2	2	1,9
3	7	6,8
4	14	13,6
5	10	9,7
6	15	14,6
7	18	17,5
8	25	24,3
9	12	11,7
Total	103	100

Table 4 shows that most of the respondents are in 8 months of pregnancy which are 25 respondents (24.3%). The least respondents were respondents in 2 months preganancy as many as 2 respondents (1.9%).

Table 5. Table of distribution by gestational age per Trimester

Pregnancy Age (Trimester)	Total	Percent %
Trimester I	9	8,7
Trimester II	39	37,9
Trimester III	55	53,4
Total	103	100

Table 5 shows that most of the respondent is in 3rd trimester which are 55 respondents (53,4%).

Table 6. Table of distribution of Respondents based on Respondent's Gingiva Status

Gingiva index status (Criteria)	Total	Percentage %
Healthy	0	0
Mild Inflammation	27	26,2
Medium Inflammation	62	60,2
Severe Inflammation	14	13,6
Total	103	100

Table 6 shows that the gingiva index of respondents with healthy criterion is 0 with percentage 0%, the criteria of mild inflammation have 27 respondents with percentage26.2%, in medium inflammatory criteria there are 62 people with percentage60.2%, and severe inflammatory criteria there are 14 respondents with percentage13.6%.

Table 7. Results of Cross Tabulation Between Pregnancy Age and Gingival Status of Pregnant Women

Gingiva Status / Age of Pregnancy	Mild		Medium		Severe		Total	
	N	%	N	%	n	%	N	%
Trimester I	3	2,9	6	5,8	0	0	9	8,7
Trimester II	15	14,6	24	23,3	0	0	39	37,9
Trimester III	9	8,7	32	31,1	14	13,6	55	53,4
Total	27	26,2	62	60,2	14	13,6	103	100

Based on table 7 of cross tabulation result, it can be seen that most respondents are respondent with pregnancy age of 3rdtrimester who have gingiva status with medium criterion equal to 32 respondent (31,1%) with medium gingiva status.

Table 8. Results of data normality test with Kolmogorov-Smirnov

	Kolmogorov-Smirnov		
	stat	Df	Sig.
GingivaIndex	,058	103	,200

Table 8 shows that the p value of 0.200> 0.05. Therefore, the data used in this study is normally distributed. Because the data is normally distributed, the data is analyzed using Pearson correlation parametric test.
The results of this study were tested using Pearson correlation parametric test that is the correlation analysis used to calculate the value of correlation between two different variables.

Table 9. Result of Statistical Pearson correlation of trimester 1 pregnancy age with gingival status

Variable	N	Sig	α
trimester 1 pregnancy age with gingival status on pregnant woman	9	0,429	0,05

Table 9. Indicates that the number (n) of the respondents in this study with the pregnancy age of trimester 1 is 9 people. The significance level is 0.429. The value of α is 0.05. So it can be said that the level of significance is greater than α. Then Ha (Variable of influence in research related to the variables affected) is accepted if sig <α 0,05 (0,429> 0,05).So, it shows that there is no correlation between trimester 1 gingival age with gingival status in pregnant women who visit Lebong Hospital -Bengkulu.

Table 10. Result of Pearson Correlation Test of the correlation of 2nd trimester pregnancy age with gingival status

Variabel	N	Sig	A
2nd trimester pregnancy age and gingival status on pregnant women	39	0,891	0,05

Table 10. Indicates that the number (n) of the study respondents with 2nd trimester pregnancy age was 39 people. The significance level is 0.891. The value of α is 0.05. So it can be said that the level of significance is greater than α. Then Ha (Variable of influence in research related to affected variable) accepted if sig <α 0,05 (0,891> 0,05). So, it shows that there is no correlation between trimester 2 gingival age with gingival status in pregnant women who visited Lebong Hospital-Bengkulu.

Table 11. Result of Pearson Correlation Test of the correlation of 3rd trimester pregnancy age with gingival status

Variabel	N	Sig	α
3rd trimester pregnancy age and gingival status on pregnant women	55	0,024	0,05

Table 11. Indicates that the number (n) of study respondents with 3rd trimester pregnancy age was 55 people. The significance level is 0.024. The value of α is 0.05. So it can be said that the level of significance is smaller than α. Then Ha (Variable of influence in research related to affected variables) is accepted if sig <α 0,05 (0,024 <0,05).So, it shows that there is correlation between gestational age with gingival status in pregnant women who visit Lebong Hospital - Bengkulu.

Table 12. Statistical test results using Pearson correlation parametric test.

Variable	N	Sig	A
Age of pregnancy (influence) and gingival status (affected) in pregnant women	103	0,000	0,05

Table 12 shows that the number of respondents (n) is 103 people. The level of significance is 0.000. The value of α is 0.05. So it can be said that the level of significance is smaller than α. Then Ha (Variable of influence in research related to affected variable) is accepted if sig <α 0,05 (0,000 <0,05). So it shows that there is correlation between gestational age with gingival status in pregnant women who visit Lebong Hospital- Bengkulu.

DISCUSSION

Based on the results of the research in table 3,the data ofrespondents characteristics which are the age of respondents and age of pregnancy.Most of the respondent age was between 25-34 years old which is 63 respondents (61.1%). Table 4 shows that the data of respondent based on age of pregnancy per month, and most of the respondents were in 8 months of pregnancy, there were 25 respondents (24,3%) and least respondent are 2 respondents those in 2 month of pregnancy (1.9 %). Table 5 shows most of the respondent based on their pregnancy age per trisemester is respondent in 3rd trimester which consist of 55 respondents (53,4%).

The results of the researchshowed in Table 6 shows that all respondents experienced gingival inflammation with different level. Gingivitis prevalence of pregnant women equal to 83,3% [17]. Gingival inflammation on them is caused by the increasing pregnancy hormone and gingival vascularization, so that the gingiva responds excessively to local irritant factors. Local irritation may be a soft stimulus of plaque and residual food[18]. Poor oral hygiene during pregnancy due to the changes in maintenance of oral and mouth hygiene of pregnant women caused by the emergence of fear when brushing teeth because of the incidence of gum hemorrhage[11]. This is in line with the results of research conducted by Hidayati (2012) that pregnant women who have good dental hygiene is only 40% [19].

Table 6 shows that severe inflammatory conditions were all found in respondents in their 3rd trimester of pregnancy which consists of 14 respondents (13.6%) with percentage criteria (100%). Gingival inflammation get more severe in the third trimester due to gum conditions in the previous trimester was not receiving dental health care[10]. This happened because ofthe presence of gingival enlargement in early pregnancy leads to the formation of pockets which is an ideal place for accumulation of build up plaque[20].

Peak of plaque formation that occurs in the first trimester due to the feeling of nausea and vomiting that makes pregnant women feel lazy to brush their teeth[11].

From the result of cross tabulation shown in Table 7, it was found that pregnant women who are suffering from gingivitis increased as the increasing of the pregnancy age. In the first trimester, pregnant women often experience nausea and vomiting caused by hormonal changes in the body. This nausea and vomiting causes pregnant womenreluctant to brush their teeth and it get worsen with their snacking habits to reduce those nausea and vomiting. Those things trigger an increasing number of plaque[11]. While, in the second trimester, the process of egg fertilization and development of the placentaoccurs, resulting in increased production of progesterone and estrogen that can trigger gingival inflammation. In this second trimester the placenta also continues to increase female sex hormones resulting in increased susceptibility to gingival inflammation during the beginning of the second trimester to its peak in the third trimester[9]. Those can get worse if previously the teeth and gum conditions did not get dental health care[10]. As the increased of bleeding in the gums when brushing teeth, the gums become higher and more swollen[21].

Table 7 of cross-tabulation results between pregnancy age and maternal gingival status showed that most respondents were in 3[rd]trimester pregnancy age (53,4%) with criteria of moderate inflammatory gingiva status 32 respondents (31,1%). Gingivitis of pregnancy generally begins to appear in the second month of pregnancy and progressively worsens as the pregnancy progresses to its peak in the eighth and ninth months10. The increased amount of estrogen and progesterone in this 3rd trimester triggers the emergence of interactions between bacteria and hormones that can alter the composition of plaque leading to gingival inflammation18.

Table 9.shows the results of data analysis using Pearson Correlation Test obtained value significance of 0.429, with the value of α is 0.05. The value of significance is greater than α, then Ha (Variable influence in research related to the affected variable) is rejected. This result shows that there is no correlation between trimester 1 gestational age and gingival status in pregnant women. Table 10 shows the results of data analysis using Pearson Correlation Test obtained value of significance of 0.891, with the value of α is 0.05. The value of significance is greater than α, then Ha (Variable influence in research related to the variables affected) is rejected. These results indicate that there is no relationship between the age of 2nd trimester pregnancy with gingival status in pregnant women. While, table 11 shows the results of data analysis using Pearson Correlation Test obtained value of significance 0,024, with value α is 0,05. The value of significance is smaller than α, then Ha (Variable influence in research related to the variables affected) is accepted. These results indicate that there is a relationship between the age of 3rd trimester pregnancy with gingival status in pregnant women. Furthermore, table 12 shows the results of data analysis using SPSS with Pearson Correlation Parametric Test, obtained the significance value 0.000 with probability value at most error (α) 0,05. The value of significance is less than the probability value so it can be concluded that Ha accepted and Ho rejected. These results indicate an association of gestational age with maternal gingival status. The results of the study in tables 11 and 12 are similar to those inKusumawardhani (2016) in 37 pregnant women with a significance value of 0.011, those implies that there is a relationship between gestational age and gingivitis[22]. In line with the theory, during pregnancy there is an increasing number of hormones that increase as the pregnant age increases, so the older the pregnancy age is, then the gingiva inflammation vulnerability is higher too[10].

CONCLUSION

Based on the results of research on the correlation between pregnancy age with pregnant women's gingival status who visited Lebong Hospital-Bengkulu, it can be concluded that:

1. Pregnant women in 3rd trimester of pregnancy (7-9 months) 53.4%.
2. Gingival status of pregnant women with criteria of inflammation was 60.2%.
3. There is a significant relationship between pregnancy age with gingival status in pregnant women.

SUGGESTION

1. For Respondents

Always seek for information through various communicationof media to increase the knowledge of oral health and improve dental and oral care behavior. Besides brushing your teeth properly and correctly, regularly consume fibrous and water-rich foods, and regularly check your dental and oral health to dental care facilities.

2. Medical workers

Improving promotive and preventive programs, especially in the field of dental and oral health care in pregnant women. So that pregnant women can get the right information in order to improve the maintenance their behavior of dental and mouth health.

3. Future Researcher

This study can be used as a reference for other studies in providing an overview of the association of pregnancy age with maternal gingival status.

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