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Risk Factor Analysis Of Fibroadenoma Mammae In Adolescent Girls In 2021

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A R T I C L E I N F O

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ABSTRACT

Breast tumor is one type of tumor found in the breast and most often attacks women. Based on a report from the New South Wales Breast Center Institute in the United States, Fibroadenoma mammae usually occurs in adolescent girls, namely at the age of 21-25 years. Less than 5% of Fibroadenoma mammae occurs at the age above 50 years and the prevalence is more than 29% of women affected by Fibroadenoma mammae in the world. The study was conducted in Padang from August - September 2021 with the design used was Case Control with a total sample of 94 respondents divided into two groups, namely 47 respondents in the case group experiencing Fibroadenoma mammae and 47 respondents in the control group not experiencing Fibroadenoma mammae. The data used were primary data and secondary data. Data were presented univariately and bivariately by using the chi-square test. The results showed that there was a significant relation between age at menarche with p value = 0.013 ($p < 0.05$) and OR = 4.336, family history p value = 0.036 ($p < 0.05$) and OR = 2.679 and lifestyle p = 0.007 ($p < 0.05$). 0.05) and OR = 3.531 with the incidence of Fibroadenoma mammae. The conclusion of this study is that there was a relation among age at menarche, family history, and lifestyle with the incidence of Fibroadenoma mammae. It is suggested that adolescents should pay more attention on their lifestyle, especially those related to the triggers of Fibroadenoma mammae..

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1. Introduction

Breast tumor is the most important disorder experienced by women. One of the types of benign tumor that is frequently found in women is FAM. FAM has the character of being painless, movable, well-defined and has a firm, springy consistency (Alini, 2018). Fibroadenoma is a benign solid tumor that develops from the lobular unit of the terminal duct due to uncoordinated proliferation of the epithelial and stromal components due to estrogen stimulation involving part of the surrounding tissue (Kumar, 2021).

Fibroadenoma is often found as a palpable mass, which may feel firm, smooth, spongy or firm, perhaps like pea or grape. It is usually painless and will often move easily to the touch. Fibroadenoma is hormonally influenced and tend to fluctuate (or increase) in size during the menstrual cycle, pregnancy and breastfeeding or when taking hormone replacement therapy and oral contraceptives (Rihana, 2017).

Fibroadenoma is the most common breast tumor in adolescents and young women. Characterized by a solitary lump, hard, spongy and not tender, 30% of women suffering from benign breast disease will require treatment at some point in their lives (Kumar, 2021). Fibroadenoma is the most common cause of breast lumps that appear in the 15-25 year age group (Singla, 2021).

Based on a report from the New South Wales Breast Center Institute in the United States, Fibroadenoma mammae (FAM) usually occurs in adolescent girls, namely at the age of 21-25 years. Less than 5% of FAM occurs at the age above 50 years and the prevalence is more than 29% of women affected by Fibroadenoma mammae in the world (Suryaningsih, 2009). In the Eastern

Nigeria region, out of 1,050 breast specimens studied, 722 cases (68.8%) were FAM (Anyikam, 2010).

Data in Indonesia on FAM is still incomplete. In mid-2011, it was estimated that 100 people were affected by benign breast tumors. FAM is a benign breast tumor that often occurs in women aged <25 years. The incidence of FAM decreases with increasing age and partially decreases at menopause. FAM is found twice as often in black people, patients with high hormone levels (adolescents and pregnant women), and patients receiving estrogen hormone therapy (Floreska et al., 2014).

Young age is defined as age under 40 years according to The European Society of Breast Cancer Specialist (EUSOMA). According to Cardoso (2015), those under 40 years of age have fertility, pregnancy, and breastfeeding problems that are different from premenopausal age. Currently FAM also attacks adolescent girls, the proportion of the incidence of FAM in developing countries such as Africa and the Middle East occurs under the age of 40 years, reaching 20% higher than developed countries. In Indonesia, based on the 2016 Non-Communicable Diseases (NCD) research, almost half (approximately 47%) of the prevalence of FAM in urban areas in Indonesia are under 40 years old.

Data obtained from the Health Profile of Padang in 2017 found that the prevalence of cases found lumps or tumors in the breast was 1.3% of cases obtained from clinical examination (SADANIS) (Health Office of Padang, 2017).

The effect of age at menarche on FAM is related to the length of exposure to hormones in the body. Early age of menarche in a woman can be caused by various things, which are influenced by genetic, environmental, and lifestyle factors. Women who experience menstruation earlier than usual will get a longer exposure to the hormones estrogen and progesterone, so that it affects tissue proliferation, especially breast tissue (Ahsani, 2019).

Based on research conducted by Ahsani (2019), it was found that women who experienced menstruation before 12 years were more at risk of developing breast tumors than women who experienced menstruation at the age of 12 years or more where p = 0.021 with an OR value = 1.291. Based on the research conducted by Cholifah (2019), one of the risk factors that can cause FAM is family history and lifestyle. Too often eating fast food, smoking, and drinking alcohol can be triggering factors. Currently, adolescents like to consume fast food as a food choice outside the home for urban adolescents. In addition to low nutritional content, fast food also contains preservatives and addictive substances.

Based on the background and risk factors mentioned above, it shows that Fibroadenoma mammae (FAM) is an important public health problem that has an impact on breast cancer. Therefore, the author is interested in conducting a study entitled risk factor analysis for the incidence of FAM in adolescent female patients in Padang in 2021.

2. Method

This is an observational analytic research with the research design used is a case control study. The research was conducted at Padang City Hospital. This study was conducted from August - September 2021. The sample in this study were Fibroadenoma mammae patients in adolescents in Padang with a total of 94 people consisting of 47 cases and 47 controls who met the inclusion and exclusion criteria. Sampling technique in this study used was a total sampling technique.

3. Results and Discussion

3.1 The relation between the age of menarche and the incidence of Fibroadenoma mammae in adolescent girls in Padang

The results of statistical tests using the chi-square test. It can be seen in table 3.1 below:

TABLE 1
The Relation Between Age Of Menarche And The Incidence Of Fibroadenoma Mammae In Adolescent Girls In Padang

Age of Menarche	Group				*P Value*	*OR*
	Case		Control			
	n	%	n	%		
At Risk	16	34	5	10,6	0,013	4,336

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Not At Risk	31	66	42	89,4
Total	47	50,0	47	50,0

Based on the table above, the analysis results of the relation between the age of menarche and the incidence of Fibroadenoma mammae in adolescent girls were obtained from 47 respondents in the case group experiencing (FAM), there were 16 people (34%) with the age of menarche at risk, while in the control group did not experience (FAM), there were people (10.6%) with the age of menarche at risk.

Statistical test results obtained p value = 0.013 (p <0.05) where there is a significant relation between the age of menarche and the incidence of Fibroadenoma mammae in adolescent girls. From the results of the analysis, it was also obtained that OR = 4.336, meaning that adolescents with menarche age who are at risk have a 4.336 times greater chance of experiencing Fibroadenoma mammae than adolescents with menarche age who are not at risk.

3.2 Relation between family history and the incidence of Fibroadenoma mammae in adolescent girls in Padang

TABLE 2
The relation between family history and the incidence of Fibroadenoma mammae in adolescent girls in Padang

Family history	Group				*P Value*	*OR*
	Case		Control			
	n	%	n	%		
Present	25	53,2	14	29,8	0,036	2,679
Not Present	22	46,8	33	70,2		
Total	**47**	**50,0**	**47**	**50,0**		

Table 2. shows the anxiety level of chronic kidney failure patients undergoing hemodialysis at Haji Adam Malik General Hospital Medan in 2021, most of them experienced mild anxiety as many as 56 people (75.7%) and a small portion experienced severe anxiety as many as 3 people (4.1%).

3.3 The relation between lifestyle and the incidence of Fibroadenoma mammae in adolescent girls in Padang

TABLE 3
The relation between lifestyle and the incidence of Fibroadenoma mammae in adolescent girls in Padang

Lifestyle	Group				*P Value*	*OR*
	Case		Control			
	n	%	n	%		
Poor	27	57,4	13	27,7	0,007	3,531
Good	20	42,6	34	72,3		
Total	**47**	**50,0**	**47**	**50,0**		

Based on the table above, the analysis results of the relation between lifestyle and the incidence of Fibroadenoma mammae in adolescent girls were obtained from 47 respondents in the case group (experiencing FAM), there were 27 people (57.4%) who had a poor lifestyle for Fibroadenoma mammae, while of 47 people in the control group (not experiencing FAM), there were 13 people (27.7%) who had a poor lifestyle for Fibroadenoma mammae. Statistical test results obtained p value = 0.007 (p <0.05) there was a significant relation between lifestyle and the incidence of Fibroadenoma mammae in adolescent girls. From the results of the analysis, it was also obtained that the value of OR = 3.531 means that adolescents who have a lifestyle that is not good for Fibroadenoma mammae have a 3.531 times greater chance of experiencing Fibroadenoma mammae than adolescents who have a good lifestyle.

3.4 Discussion

a. The Relation between Menarche Age and Fibroadenoma mammae

In this study, the results of statistical tests obtained p value = 0.013 (p < 0.05), meaning that there is a significant relation between the age of menarche and the incidence of Fibroadenoma mammae in adolescent girls. From the results of the analysis, it was also obtained that OR = 4.336, meaning that adolescents with menarche age who are at risk have a 4.336 times greater chance of experiencing Fibroadenoma mammae than adolescents with menarche age who are not at risk.

Age at menarche is associated with the risk of Fibroadenoma mammae. The younger a woman is at the time of menarche, the higher her risk of developing Fibroadenoma mammae. Some groups have shown that the start of menstruation before age of 11 can increase the risk of Fibroadenoma mammae. On the other hand, menarche that occurs later (age 14 years or older) may reduce the risk. A meta-analysis of 117 epidemiological studies showed that the relative risk of Fibroadenoma mammae increased by 5% for each year of earlier menarche and another collaborative group on hormonal factors reported a reduction of Fibroadenoma mammae by up to 18% in girls who had menarche later (age of 13 years), compared to those who started their menstrual cycle at 11 years of age or younger. The factors that influence age at menarche are quite varied, including exposure to cigarettes during gestation, psychological status, diet, and BMI.

The effect of age at menarche on Fibroadenoma mammae is related to the length of hormone exposure to the body. Early age of menarche in a woman can be caused by various things, which are influenced by genetic, environmental, and lifestyle factors that can trigger early menarche. Currently, there has been a shift in the age of menarche which tends to occur earlier due to changes in lifestyle and consumption patterns (Castells, 2015).

The hormone estrogen is extremely influential on the growth and development of tissue in the breast. Excessive estrogen exposure and its association with an increased risk of Fibroadenoma mammae may be explained by the effect of estrogen in increasing the rate of mitosis of breast cells, in which estrogen activates estrogen receptors on mammary gland cells and stimulates cell proliferation, and inhibits apoptosis (Fortnher et al, 2013).

b. The Relation between Family History and Occurrence of Fibroadenoma mammae

In this study, the results of statistical tests obtained p value = 0.036 (p < 0.05), meaning that there is a significant relation between family history and the incidence of Fibroadenoma mammae in adolescent girls. From the results of the analysis, the value of OR = 2.679 means that adolescents who have family members who have had Fibroadenoma mammae have a 2.679 times greater chance of experiencing Fibroadenoma mammae than adolescents who do not have a family who has Fibroadenoma mammae.

The factor of family history of having breast tumors is one of the factors causing the incidence of FAM for family members. Congenital susceptibility or heredity of breast tumors are generally not realized by patients who have a history of the disease, this is shown by female patients who suffer from FAM at a young age. If a woman has had a breast tumor on one side of her breast, then the risk of developing another breast tumor on the other side or of recurrence at the previously affected site is high. The incidence of FAM in women is often accompanied by a family history of breast tumors, and it is possible that women who also have a family history of breast tumors can avoid the threat of FAM events in their lives (Buckman, 2010).

According to Lanfranchi (2015), women who have relatives who suffer from FAM will have a higher risk of FAM, especially first-degree relatives such as mothers, brothers, or sisters or daughters. Family history of benign or malignant breast tumors in first-degree relatives has been reported by several investigators to be associated with an increased risk of developing FAM.

It was reported that 27% of FAM patients had a family history of breast disease. Unlike single Fibroadenoma sufferers, multiple Fibroadenoma sufferers have a strong family history of breast disease (Elfina, 2015).

c. The Relation between Lifestyle and Incidence of Fibroadenoma mammae

In this study, the results of statistical tests obtained p value = 0.007 (p < 0.05) meaning that there is a significant relation between lifestyle and the incidence of Fibroadenoma mammae in adolescent girls. From the results of the analysis, it was also obtained that OR = 3.531, meaning that adolescents who have a bad lifestyle for Fibroadenoma mammae have a 3.531 times greater chance of experiencing Fibroadenoma mammae than adolescents who have a good lifestyle.

The lifestyle that can trigger the occurrence of FAM is physical activity. Physical activity is any body movement due to skeletal muscle activity that results in energy expenditure. Lack of physical activity causes an imbalance between calories that enter and leave the body, so that it can increase the proliferation process that is getting out of control and results in an increase in the number of cancer cells in the body. With sufficient physical activity, a balance will be achieved between calories in and calories out and will affect the decrease in hormonal circulation so that it reduces the proliferation process and can prevent the incidence of FAM (Yuliarto, 2012).

According to the researcher's opinion, most of the respondents have a nutritional lifestyle that is at risk for FAM because they often consume foods such as fried foods and smoked meat. These types

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of foods contain carcinogenic compounds that cause tissue proliferation including breast tissue. Most of the respondents also stated that when buying food they never saw/read the composition of whether the food contains preservatives, dyes, and artificial sweeteners or not, because it is in accordance with Haryanto's theory (2009) that foods containing preservatives, dyes, and artificial sweeteners can trigger the occurrence of problems in breast tissue that trigger the occurrence of FAM.

4. Conclusion

Based on the analysis results of risk factors for the incidence of Fibroadenoma mammae in adolescent girls, where there is a significant relation among age at menarche, family history, and lifestyle with the incidence of Fibroadenoma mammae.

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