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FACTORS RELATED UTERINE MIOMAS (UTERINE FIBROIDS) AT RSUP DR. MOHAMMAD HOESIN PALEMBANG

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ABSTRACT

Background: Uterine fibroids or uterine myomas are benign tumors cell myometrial smooth muscle surrounded by a pseudocapsule. Uterine fibroids occur in reproductive age women and will slowly disappear at menopause. Uterine fibroids are the second most common reproductive problem experienced by women in Indonesia after cervical cancer. The world incidence rate of uterine myomas is 20-35%, while Indonesia ranges from 2.4% to 11.7%. The study was conducted to know related factors with incident of uterine myomas at RSUP Dr. Mohammad Hoesin Palembang. Methods: This research is an analytic observational study with a cross-sectional approach. The sample of this study were gynecological patients at RSUP Dr. Mohammad Hoesin Palembang and data collected for the period January 2020 - July 2021 that met the inclusion criteria and exclusion criteria. Results and Conclusions: From 60 patients, the proportion of patients with uterine myomas was 61.7%. The analysis using the Chi-square test showed that age (p = 0.005) had a significant relationship with the incidence of uterine myomas. The results of the analysis using the Chi-square test showed that age at menarche (p= 1.00), parity (p= 0.761), body mass index (p =0.559), infertility (p =0.112), history of hypertension (p =1.00), history of diabetes mellitus (p = 1.00), history of using hormonal contraception (p = 0.634) did not have a significant relationship with the incidence of uterine myoma. Conclusion of this study is the mostr related factors of uterine myomas is age factor.

Keywords: uterine myoma, infertility, hypertension, diabetes mellitus, hormonal contraception

1. INTRODUCTION

Uterine myomas or uterine fibroids, are benign cell myometrial smooth muscle tumors surrounded by a pseudocapsule.[1] Female at reproductive age has a higher risk and will slowly disappear at menopause. Uterine fibroids are the second most common reproductive problem experienced by women in Indonesia after cervical cancer.[2] Uterine fibroids are classified according to uterine lining based on location the anatomy.

The three types most common subtypes are intramural, subserous, and submucosal types. These three tumors are the most common in the pelvic cavity. About 70% of patients suffering from uterine fibroids have no symptoms (asymptomatic), so the patient is not aware of the disease and receive no treatment. About 30% of patients with uterine myomas have symptoms or are symptomatic. Some of the symptoms experienced the form of massive bleeding in

the uterus or menorrhagia, pain in the abdominopelvic, constipation, urinary disorders, and infertility.[4] In a research introduction by Agustian et al. at RSUP Dr. Mohammad Hoesin Palembang 2013 was obtained that 52.40% of gynecology patients diagnosed suffer uterine myomas. These five things explain the number of incidents of uterine myoma at RSUP Dr. Mohammad Hoesin Palembang. The aim of this study is identified factors related with incident of uterine myomas.

2. METHOD

This research is an observational analytic study with a cross-sectional research design. This study used secondary data from medical records of gynecological patients at Dr. Mohammad Hoesin Palembang Period January 2020 - July 2021 to determine the relationship between age, age at menarche, parity, hypertension, diabetes mellitus, infertility, hormonal contraception, and body mass index with the incidence of uterine myoma at Dr. Mohammad Hoesin Palembang. The sample of this study is medical record data from gynecological patients with uterine and non-uterine myomas at the Obstetrics and Gynecology Section of the Dr. Central Hospital. Muhammad Hossain Palembang period January 2020 - July 2021 met criteria inclusion and exclusion with consecutive sampling technique.

3. RESULT

Data collected from 60 medical records of gynecology patients at RSUP Dr. Mohammad Hoesin Palembang Period January 2020 - July 2021. Based on table 1, the frequency distribution of gynecological patients found that from 60 subjects of gynecological patients, 37 patients (61.7%) had more uterine myomas than those who did not experience uterine myomas, namely 23 patients (38.3%) consisting of endometriosis cyst patients, endometriosis, ovarian cysts, Bartholin's cysts, dermoid cysts, and cervical polyps.

Table. 1 Distribution Frequency of Gynecology Patient at RSUP Dr. Mohammad Hoesin

Gynecological patients	Frequency	%
Uterine Myomas	37	61,7
Endometriosis cyst	10	16,7
Ovary cyst	6	10
Endometriosis	4	6,7
Bartholin cyst	1	1,7
Dermoid cyst	1	1,7
Cervical polyp	1	1,7
Total	**60**	**100**

Table 2. The Factors Related to Uterine Myomas

Factors	Uterine myomas		Non-Uterine Myomas		p-value	OR (95%CI)
	n	%	n	%		
Age						
≥35	27	78,1	7	21,9	0,005	4.762
<35	12	42,9	16	57,1		(1,548-14,648)
Age of menarche						
Early	2	66,7	1	33,3	1,00	1,257
Normal	35	61,4	22	38,6		(0,108-14,700)
Amount of parity						
Nulli-primipara	26	60,5	17	39,5	0,761	0,834
Multi-grandepara	11	64,7	6	35,3		(0,260-2,681)
Body Mass Index						
Obesity	14	66,7	7	33,3	0,559	1,392
Non obesity	23	59	16	41		(0,459-4,218)
Fertility						
Infertility	19	73,1	7	26,9	0,112	2,431
Fertile	18	52,9	16	47,1		(0,805-7,230)
Hypertension						
(+)	6	66,7	3	33,3	1	1,290
(-)	31	60,8	20	39,2		(0,289-5,757)
Diabetes Mellitus						
(+)	3	75	1	25	1	1,941
(-)	34	60,7	22	39,3		(0,289-5,757)
Hormonal Contraception						
Yes	2	50	2	50	0,634	0,600
No	35	62,5	21	37,5		(0,079-4,583)

*uterine myoma=37(61,7%); non-uterine myoma = 23 (38,3%)

4. DISCUSSION

Relationship between age and uterine myomas

Data analysis of the relationship between age and the incidence of uterine myomas showed that from 28 patients aged <35 years who experienced uterine myomas, as many as 12 patients (42.9%) while in patients aged 35 years, as many as 25 patients (78.1%) of 32 patient (Table 2). Statistical tests using chi-square showed that the value of $p = 0.005$ with $= 0.05$ ($p<\alpha$) indicates a significant relationship between age and the incidence of uterine myomas. Odds Ratio Value (4,762) 95% CI (1,548–14,648). Age 35 increases the risk factor of uterine myoma by 4.762 times compared

with group age <35 years. At reproductive age 20-30 years incident of uterine myoma can not be detected because of no symptoms found yet. At beginning of reproductive age, incident of uterine myoma only detected 20% and have no reported yet at the age before menarche. Organs and body systems of women decline with age early 35 years. At age 35, symptoms of uterine myoma started to appear and be detected. The enhancement stimulates the estrogen hormone and will gradually reduce moment age climacteric then at the age of menopause no occur secretion the hormone estrogen in the ovaries. Based on theory, explain that the age of 35 is a factor risk of uterine myoma. 6 7

Reproductive age is associated with increased estradiol and estrone levels and with -globulin lower sex hormone binding. Both of these hypotheses are supported by other theories because higher exposure to progesterone and estrogen increases a woman's risk for fibroid development. Fibroids have been found to have increased numbers of estrogen receptors, reduced capacity to metabolize estradiol to less active estrone, and enhanced transcriptional responses to estrogen exposure compared to the myometrium. Thus, fibroids promote an estrogen-enriched environment and may respond more strongly than the normal myometrium to estrogen. 8

Relationship between age of menarche and uterine myomas

The analysis of the relationship between menarche and the incidence of uterine myomas showed that from three patients who experienced early menarche and had uterine myomas, two patients (66.7%). The patients with normal menarche were 35 (61.4%) of 57 patients (Table 2). The results of the statistical test of the relationship between menarche and the incidence of uterine myomas using the chi-square test showed that there was no significant relationship between the value of p = 1,000 with = 0.05 (p>α), OR (1.257) 95% CI (0.108 – 14.700). Based on theory, a woman with early menarche experiences a cycle period longer compared with a normal menarche woman with normal menarche or slow. However, the menstruation cycle in every woman is different. This Statement supports taht there is significant relationship among age of menarche with incident uterine myoma. In gene-related research, it has been found that myoma increases the number of estrogen receptors, reduces the capacity for metabolizing estradiol to estrone which is not active enough and increases response transcription to exposure to estrogen compared with myometrium. 9 10

Research results are not in line with several existing theories because only there are two samples of research on the early menarche group. That could occur because at the time charging medical records. Menarche age is written subjective, so the results study could be said not valid because the scatter sample is too narrow.

Relationship between parity and uterine myomas

The analysis of the relationship between parity and the incidence of uterine fibroids showed that from 43 patients with null-primary parity, 26 patients (60.5%) had uterine myomas, while 11 patients (64.7%) out of 17 had multi-grande parity patient.

The results of the statistical test of the relationship between parity and the incidence of uterine fibroids using the chi-square test showed that there was no significant relationship between p-value = 0.761 with = 0.05 (p>α), OR (0.834) 95% CI (0.260 – 2.681) (Table 2). In pregnancy, enhancement matrix extracellular in the myometrium will occur, expression of hormone peptides and steroids. After getting birth, the myometrium will return to normal size through the process of apoptosis and cell differentiation. In this process occur, deterioration of the vessels

of the blood that gives nutrition in uterine myoma so that uterine myoma will shrink and disappear with itself. The incidence of uterine myoma will decrease with the increasing number of pregnancies. In women with less parity, the estrogen hormone secreted is relatively stronger, namely, estradiol, while in women with more parity, the estrogen secreted in the estriol type. [11,12] Uterine fibroids often occur in nulliparous women or in infertile women but in research, this no obtained significant relationship _ Among amount parity with incident uterine myoma is possible influenced by other factors such as intake nutrition and lifestyle. [1 3]

Relationship between Body Mass Index (BMI) and uterine myomas

The analysis of the relationship between body mass index and the incidence of uterine myomas showed that from 21 obese patients, 14 patients (66.7%) were less obese than 23 patients (59%) from 39 patients not obese. The results of statistical tests using the test chi-square found that the relationship between body mass index and the incidence of uterine fibroids was not significant, p value = 0,559 with = 0,05 (p>α), OR value (1,392) 95% CI (0,459 – 4,218). (Table 2). Obesity occurs because of an imbalance between height and weight due to accumulated fat tissue in the body, which advantages excess weight and ideal size. Enhancement of the hormone estrogen in the body is caused by the accumulation of fat tissue that will trigger the conversion of androgens to Enzyme - assisted estrogen hormone. Occur enhancement risk happening uterine fibroids by 21% for every 10 kg weight gain. [14 15] This research data uses medical record data so that weight and height data are considered very subjective because it is not known whether the data was written through direct measurements or not, so the research data is considered less valid.

Relationship between infertility and uterine myomas

The analysis of the relationship between infertility and the incidence of uterine fibroids showed that from 26 infertile patients, 19 patients (73.1%) had more infertile than fertile patients (52.9%) from 34 patients. The results of statistical tests using the chi-square test found that the relationship between infertility and the incidence of uterine myomas was not significant, p-value = 0.112 with = 0.05 (p>α), OR (2.413) 95% CI (0.805 – 7.230). The infertility mechanism occurs due to distortion of the anatomical position and inflammation, especially in the intramural or submucosa. There is much debate about the relationship between infertility and the incidence of uterine fibroids due to conflicting theories about whether fibroids cause infertility or vice versa. Mechanisms that involve functional changes due to uterine fibroids include increased contractility of the uterus and disruption of the endometrial blood supply. One of the most frequently seen histologic changes associated with uterine fibroids is glandular atrophy and ulceration that affects the proximal to the distal end of the endometrium. [16 17] The distribution of the data in this study was not good because there was only a difference in the difference of 1 sample in the infertile and fertile groups, so in this study, there was no significant relationship between infertility and the incidence of uterine myomas. In this study, neither relationship with the location of the occurrence of uterine fibroids, while the increase in the incidence of infertility is highly dependent on the position of the uterine myoma.

Relationship Hypertension and uterine myomas

The analysis of the relationship between hypertension and the incidence of uterine myomas showed that from 9 hypertensive patients, 6 patients (66.7%) had fewer hypertensives than 31 patients (60.8%) from 51 patients. The results of statistical tests using the chi-square test found that the relationship between hypertension and the incidence of uterine myomas was not significant, p-value = 1.00 with = 0.05 (p>α), OR value (1,290) 95% CI (0.289-5.757). (Table 2). In patients with uterine myomas, an increase in the expression of the IGF -1 gene was found compared to normal women. In comparison, hypertension stimulates cytokines that will proliferate tumor tissue. In women with hypertension, hemodynamic stress occurs, which will result in an increased risk of uterine fibroids by which smooth muscle cells will be damaged, then smooth muscle cell dysfunction occurs, their permeability increases, and cell migration occurs, which will trigger myoma growth. [12 18] There is still a difference in a study about hypertension related to uterine myoma, so the study must be continued. This thing is not in line with many theories used, possibly caused by still limited sample study so that distribution of the sample is dominated by the patient without disease comorbid in the form of hypertension.

The Relationship of Diabetes Mellitus with Incident Uterine Myoma

The analysis of the relationship between diabetes mellitus and the incidence of uterine fibroids showed that from 4 patients with diabetes mellitus, 3 patients (75%) had more than 1 patient (25%) of 51 patients without diabetes mellitus. (Table 2). The results of statistical tests using the chi-square test found that the relationship between diabetes mellitus and the incidence of uterine myoma was not significant, p-value = 1.00 with = 0.05 (p>α), OR value (1,290) 95% CI (0.289-5.757). The triggering factors for diabetes mellitus are increased insulin, IGF-1, and hyperandrogenic. In an in vitro study, it was found that there was an association between uterine myoma proliferation and an increase in IGF -1. [9 19] In a study about diabetes mellitus relationship with incident uterine myoma still, there is a difference, so must conduct study more continued. This is not in line with many theories used, possibly caused by still limited sample study so that the patient dominates the sample distribution without a history of diabetes mellitus.

Relationship Hormonal Contraception with Incident Uterine Myoma

The results of the analysis of the relationship between the use of hormonal contraception and the incidence of uterine myomas showed that from 4 patients with diabetes mellitus, there were 2 patients (50%) than patients who did not use hormonal contraception, as many as 35 patients (62.5%). of 56 patients. The results of statistical tests using the chi-square test found that the relationship between diabetes mellitus and the incidence of uterine myomas was not significant, p-value = 0.634 with = 0.05 (p>α), OR value (0.600) 95% CI (0.079-4.583). Hormonal contraceptives contain hormones aimed at preventing conception so that pregnancy does not occur. Contraception hormones and fibroids womb has studied extensively, but not no pattern appears. 7 There are two different components _ in the growth of uterine myoma, namely, the transformation of normal myocytes become abnormal myocytes due to mutation somatic growth. Abnormal myocytes become visible tumors by clinical. Cell myoma proliferates depending on the hormones sex steroids, namely estrogen and progesterone. 20 21

Data on the group of uterine myoma patients with the use of hormonal contraception is minimal, so the analysis results are considered less valid because the data distribution is too narrow, causing biased analysis results. This can happen because when filling out medical record data, they are not asked about the history of using hormonal contraception because they are considered less critical.

5. CONCLUSIONS

There were 37 samples (61.7%) with a diagnosis of uterine myoma from 60 samples study and 23 samples (38.3%) of patients with gynecology other as non-myoma uterine samples. There is a significant relationship between age with incident uterine myoma with a p-value = 0.005 with = 0.05 ($p<\alpha$). Need conducted study other related factors with uterine myoma with more samples and more data distribution wide. In women in the group age risky, i.e., age 35 years old for to do pattern life healthy, do inspection health by routine and multiply consumption soya bean because of soybeans some proteins can reduce and inhibit happening initiation uterine myoma.

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