Eleven Years' Experience of Sociodemographic and Clinicopathologic Characteristics of Endometrial Carcinoma Patients at a Tertiary Hospital

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Received : 21-06-2023
Accepted : 09-03-2023
Published : 30-09-2024

ABSTRACT

Endometrial carcinoma is a malignant proliferation of the endometrium cells. This particular type of carcinoma is a world problem since it was ranked the second most common gynecology malignancy, and is the most common malignancy found in the uterus. This research is conducted to identify the sociodemographic and clinicopathologic characteristics of endometrial carcinoma patients at RSUP Dr. Mohammad Hoesin Palembang considering that there is no data available about this cancer. This is an observational study with a cross-sectional design. Of all 37 samples collected, the majority are women of ages 20-50 (81,1%), married (83,8%), housewives (40,5%), and live within the city of Palembang (73%). Histopathologically, the most common subtypes found are endometrioid adenocarcinoma (62,2%), and of grade G3. The majority of the samples are within stage 1 cancer (27%), and with no metastases (83,8%). It can be concluded that, socio-demographically, the majority of endometrial carcinoma patients are aged 20-59 years old, are married, work as housewives, and live in the city of Palembang, while the histopathological characteristics that are commonly found are the endometrioid adenocarcinoma subtype, grade G3 carcinoma, stage 1 carcinoma, and carcinoma without metastases.

Keywords: Endometrial carcinoma, epidemiology, histopathology, stage

P-ISSN 0215-7284
e-ISSN 25279106
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INTRODUCTION

Endometrial carcinoma is the most common type of uterine malignancy in the world, accounting for 80% of all uterine malignancies in Europe and >90% of all uterine malignancies in the United States, ranking second in all cancer diagnoses of the female genitalia.[1] In 2018, an estimated 382,000 women were diagnosed with endometrial carcinoma worldwide, with an average incidence ranging from 1-25 cases per 100,000 people annually. According to the American Cancer Society (ACS), uterine cancer is the most common type of cancer found in women's reproductive organs in the United States. In 2022 it is estimated that there will be as many as 65,950 new cases of uterine cancer diagnosed, and as many as 12,550 women are expected to die from uterine cancer, which consists of endometrial carcinoma and uterine sarcoma.[2]

In Indonesia, Riset Kesehatan Dasar (Riskesdas) states that cervical, uterine, and ovarian cancers are the most common types of cancer, followed by breast cancer, skin cancer, endocrine gland cancer, and soft tissue cancer. Central Java is the province with the most cases of cervical, uterine, and ovarian cancer with 208 respondents suffering from cervical, uterine, and ovarian cancer, followed by the provinces of East Java and West Java with 156 and 193 respondents suffering from cervical, uterine, and ovarian cancer respectively. Socio-demographically, the highest number of cervical, uterine, and ovarian cancer sufferers in Indonesia are adults (20-59 years old) at 81.8%, followed by the elderly (>60 years old) at 12.24%, and adolescents (10-19 years old) as many as 1.3% of the incident, with the most sufferers having been married, at 95.4%.[3] Endometrial carcinoma was most commonly diagnosed in women aged 55 to 64 years old, with a median age of 62 years old, and a higher prevalence in white American women than black African-American women, namely 26.3 cases compared to 24.8 new cases per year. 100,000 population per year. The death rate is higher in black African-American women compared to white women, namely 8.1 deaths compared to 4.2 deaths per 100,000 population per year.[5]

Endometrial carcinoma is a malignant neoplasm originating from the endometrial lining of the uterus. Variation in histopathological characteristics of endometrial carcinoma is used as a classification tool by the WHO, which in 2020 determined several subtypes of endometrial carcinoma, namely endometrioid adenocarcinoma, serous carcinoma, clear cell adenocarcinoma, undifferentiated and dedifferentiated carcinoma, mixed cell adenocarcinoma, mesonephric adenocarcinoma, squamous cell carcinoma, mucosal carcinoma, mesonephric-like adenocarcinoma, and carcinosarcoma.[1,4]

Patients with endometrial carcinoma generally come with complaints of blood or abnormal discharge from the vagina, bleeding can be in the form of abnormal bleeding between menstrual cycles, sudden changes in menstrual schedules, or vaginal bleeding after menopause. Other symptoms that are often experienced by patients with endometrial cancer are pain in the pelvis, palpable masses in the lower abdomen, and unusual weight loss.[1,6]

Several factors can increase a person's risk of developing endometrial carcinoma, including diabetes, obesity, old age, early menarche, late menopause, nullipara, a history of endometrial carcinoma in a close family, infertility due to polycystic ovarian syndrome (PCOS), radiation exposure, and hormonal therapy using estrogen.[5,7,8] Some of these risk factors directly or indirectly affect circulating free estrogen levels in the body, and some do not affect estrogen levels. The influence of estrogen on the growth of carcinoma is then used to classify the types of carcinoma based on the role of estrogen, which is called the binary system, dividing endometrial carcinoma into type I (influenced by estrogen) and type II (not influenced by estrogen).[1,5,9]

Based on the information above, it can be concluded that endometrial carcinoma is a problem that has many characteristics, signs, and symptoms, is influenced by many factors, and has a high prevalence. Data regarding the sociodemographic and clinicopathological characteristics of patients with endometrial carcinoma are very important to assist in the screening and management stages. Therefore, a study on the sociodemographic and clinicopathological characteristics of endometrial carcinoma patients at Dr. Mohammad Hoesin Tertiary Hospital for the 2008-2018 period is important to be done.

METHODS

This research is a descriptive study with a cross-sectional design approach with samples in the form of secondary data taken using the total sampling technique for endometrial carcinoma patients in 2008-2018

Maj Patol Indones 2024; 33(2): 823-833
DOI: 10.55816/mpi.v33i3.630

P-ISSN 0215-7284
e-ISSN 25279106
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obtained from the Cancer Registration Team at Dr. Mohammad Hoesin Hospital Palembang. The data obtained are hospital-based and do not describe the distribution of endometrial carcinoma throughout Palembang City.

The data collected was then sorted by the criteria of carcinoma with the primary location in the endometrium and being a primary tumor, not the result of metastases from other cancers, with a sample of 103 samples. A total of 60 samples were eliminated due to the multiplication of data; 5 samples were eliminated because of a non-specific type of malignancy (Malignancy, 8000/3), and 1 sample was eliminated because of a dubious histopathological subtype, namely a sample with the subtype squamous cell carcinoma.

The final number of samples that met the inclusion and exclusion criteria included in this study were 37 samples which were then recorded according to the research variables that had been determined, namely age, marital status, occupation, place of residence, histopathological subtype, tumor stage, and metastases. Histopathological type of endometrial carcinoma based on the 2020 WHO (World Health Organization) classification. There were 8 samples with adenocarcinoma endometrial without a specific subtype, so we grouped these samples as unknown adenocarcinoma subtypes. Both grading and staging of this cancer used the FIGO (the International Federation of Gynecology and Obstetric) system. Data processing was then carried out using the SPSS statistical data processing program version 21 for Windows, and the research results were presented in the form of tables and narratives.

RESULTS

From 37 samples, the majority were aged 20-59 years old (81.1%), with the distribution of the majority being 20-49 years old, having married status (83.8%), working as a housewife (40.5 %), living in Palembang city (73%), having endometrioid adenocarcinoma subtype (62.2%), grade G3 carcinoma (18.9%), having stage 1 cancer (27%), and no metastases (83.8 %), while the most metastases were to other organs, such as the liver.

Table 1. Characteristic distribution of endometrial carcinoma.

Variables	Total	
	n	%
Age		
10-19 years old	1	2.7
20-59 years old	30	81
≥60 years old	6	16.2
Marital Status		
Married	31	83.8
Have been married	0	0
Have never been married	0	0
Unknown	6	15.2
Occupation		
Unknown/ does not work	14	37.8
Office job	1	2.7
Farmer	1	2.7
Factory worker	0	0
Military/police	0	0
Housewive	15	40.5
Medical personnel	0	0
Teacher	1	2.7
Merchant	0	0
Other occupations	5	13.5
Domicile		
Palembang city	27	73
Outside of Palembang city	10	27
Histopathological subtypes*		
Endometrioid adenocarcinoma (8380/3)	23	62.2
Serous carcinoma high grade (8441/3)	0	0
Serous carcinoma low grade (8441/3)	0	0
Clear cell adenocarcinoma (8310/3)	2	5.4
Undifferentiated carcinoma (8020/3)	0	0
Mixed cell adenocarsinoma (8323/3)	0	0
Mesonephric adenocarcinoma (9110/3)	0	0
Squamous cell carcinoma (8070/3)	1	2.6
Mucinous carcinoma, intestinal type (8144/3)	0	0
Mesonephric-like adenocarcinoma (9111/3)	0	0
Carsinosarcoma (8980/3)	4	10.8
Unknown adenocarcinoma subtypes (8010/3)	8	21.6
Histopathological grade		
G1	4	10.8
G2	6	16.2
G3	7	18.9
Undifferentiated	0	0
Unknown	20	54.1
Tumor stage		
Stage 1	7	18.9
Stage 1a	2	5.4
Stage 1b	1	2.7
Stage 1c	0	0
Stage 2	2	5.4
Stage 2a	0	0
Stage 2b	0	0
Stage 2c	0	0
Stage 3	0	0
Stage 3a	0	0
Stage 3b	0	0
Stage 3c	1	2.7
Stage 4	0	0
Stage 4a	0	0
Stage 4b	1	2.7
Metastases		
No metastases	31	83.8
Metastases to lymph node	1	2.7
Metastases to ovary/cervix	2	5.4
Metastases to other organs	3	8.1

*The 2020 female genital tumor WHO classification

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DOI: 10.55816/mpi.v33i3.630

P-ISSN 0215-7284
e-ISSN 25279106
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Samples are distributed to many variables, including histopathological subtypes, age (Table 2), the histopathological grades (Table 3), and metastases (Table 4).

The most common histopathological subtypes found in endometrial carcinoma patients at Dr. Mohammad Hoesin Hospital Palembang is endometrioid adenocarcinoma (62.1%), unknown adenocarcinoma subtype (21.6%), carcinosarcoma (10.8%), and clear cell adenocarcinoma (5.4%), respectively. All of these histopathological subtypes had a majority of patients aged 20-59 years old (Table 2).

Table 2. The distribution of histopathological subtypes of endometrial carcinoma by age.

Histopathological subtype	10-19 years old		20-59 years old		≥60 years old		Total	
	n	%	n	%	n	%	n	%
Endometrioid adenocarcinoma (8380/3)	1	3.2	16	77.4	6	19.3	23	100
Serous carcinoma high grade (8441/3)	0	0	0	0	0	0	0	0
Serous carcinoma low grade (8441/3)	0	0	0	0	0	0	0	0
Clear cell adenocarcinoma (8310/3)	0	0	2	100	0	0	2	100
Undifferentiated carcinoma (8020/3)	0	0	0	0	0	0	0	0
Mixed cell adenocarcinoma (9110/3)	0	0	0	0	0	0	0	0
Mesonephric adenocarcinoma (9110/3)	0	0	0	0	0	0	0	0
Squamous cell carcinoma (8070/3)	0	0	0	0	0	0	0	0
Mucinous carcinoma, intestinal type (8144/3)	0	0	0	0	0	0	0	0
Mesonephric-like adenocarcinoma (9111/3)	0	0	0	0	0	0	0	0
Carcinosarcoma (8980/3)	0	0	4	100	0	0	4	0
Unknown adenocarcinoma subtypes (8010/3)	0	0	8	100	0	0	8	0
Total	1	2.6	30	78.9	6	18.4	37	100

Table 3. The distribution of histopathological grades of endometrial carcinoma by age.

Histopatological grade	10-19 years old		20-59 years old		≥60 years old		Total	
	n	%	n	%	n	%	n	%
G1	0	0	4	100	0	0	4	100
G2	0	0	3	50	3	50	6	100
G3	0	0	6	85.7	1	14.2	7	100
Undifferentiated	0	0	0	0	0	0	0	0
Unknown	1	5	17	85	2	10	20	100
Total	1	2.6	30	71	6	13.1	37	100

Table 3 shows that the majority of patients with endometrial carcinoma in both G1 (100%) and G3 (85.7%) grades came from the 20-59 year age group, whereas in grade G2 carcinoma, 50% of patients were 20-59 years old and 50% were ≥60 years old. There were no patients with undifferentiated carcinoma.

Table 4. The distribution of endometrioid adenocarcinoma metastases based on histopathological grade.

Metastases	G1		G2		G2		Unknown		Total	
	n	%	n	%	n	%	n	%	n	%
No metastases	1	5.5	4	22.2	4	22.2	9	50	18	100
Metastases to lymph node	0	0	0	0	1	100	0	0	1	100
Metastases to ovary/cervix	0	0	0	0	1	100	0	0	1	100
Metastases to other organs	0	0	1	33.3	1	33.3	1	33.3	3	100
Total	1	4.3	5	21.7	7	30.4	10	43.4	23	100

There were 23 endometrioid adenocarcinoma patients as shown in table 4. The majority of samples had no metastases (78.2%), followed by metastases to other organs (13%), metastases to lymph nodes (4.3%), and metastases to the ovaries or cervical (4.3%). The majority of endometrioid adenocarcinoma patients without metastases have carcinoma grades G2 or G3, as well as patients with metastases to other organs. Meanwhile, all endometrioid adenocarcinoma patients had G3 grade carcinoma, but there were 43.4% of patients without histopathological grade data.

DISCUSSION

The results showed that the most patients with endometrial carcinoma were in the age group of 20-59 years old with a distribution of 40% of patients aged 50-59 years old and 60% of patients aged 20-49 years old, with the youngest patient aged 19 years old, and the oldest patient aged 81 years old. These results are in accordance with research conducted by

Maj Patol Indones 2024; 33(2): 823-833
DOI: 10.55816/mpi.v33i3.630

P-ISSN 0215-7284
e-ISSN 25279106
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Helmanda, S. and Yusrawati at Dr. M. Djamil Padang in 2016-2018, where more patients were found at aged ≤50 years old (58.9%) than patients aged over han 50 years old (41.1%).[7,10]

The World Health Organization (WHO) states that the age group that has a higher risk of experiencing endometrial carcinoma is the group of post-menopausal women, with an average age of over 50 years old. This theory is not in line with the results. This may be due to a shift in the age of menopause in Indonesia which can be caused by differences in lifestyle, race, BMI, level of obesity, nutrition and parity which are determining factors in the process of menopause. Another possibility is that there has been a shift in the age of diagnosis of endometrial carcinoma to be younger due to differences in unhealthy lifestyles, increasing rates of obesity, and other affecting factors.[1,11-13]

Age can affect carcinogenesis due to telomere shortening of chromosomes, so patients over 50 years old are more susceptible to genomic degradation and interchromosomal fusion, which can lead to oncogene mutations leading to cancer.[14] The relationship between the age of menopause and the incidence of endometrial carcinoma itself is still being debated, but research conducted by Wu and Sun showed that the age of menopause is positively correlated with the risk of developing endometrial carcinoma. Menopause can increase the risk of endometrial carcinoma due to progesterone deficiency, and estrogen exposure increases the risk of endometrial stem cell mutations both spontaneously and due to environmental induction.[13,17,18] But unfortunately, this research does not include menopausal age data to analyze.

The results showed that most of the sample was married, following research conducted by Kemo et al, where 60.4% of all gynecological cancer patients at the University Teaching Hospital of Youndé in 2008-2017 were married.[19] The results of this study are also in line with other studies by Dong et al, where as many as 55.5% of patients were married.

On other side, it can be seen that marital status has no direct relationship with the incidence of endometrial carcinoma. Schonfeld et al, quoted from DeGraaf, stated that endometrial carcinoma is more common in married women related to parity, where multiparous women are known to have a 20% to 40% smaller risk of endometrial carcinoma than nulliparous women due to increased levels of progesterone in pregnancy that can limit proliferation. endometrial cells and encourage proliferation and apoptosis of endometrial cells so that hyperplasia does not occur.[19,20] This finding is related to this research that most endometrial cancer patients are married women.

Based on the results of the study, the majority of patients work as housewives. These results are consistent with a study by Chemo et al, where 60% of all gynecological cancer patients work as housewives.

The incidence of endometrial carcinoma is not directly related to the patient's employment status, except for patients who have jobs with a high risk of radiation exposure or carcinogenic components. The risk of endometrial carcinoma is more related to the amount and consistency of physical activity performed, including work that involves physical activity such as walking, lifting weights, and others. Research by Hidayat et al demonstrated that women who were physically active from a young age had a lower risk of developing endometrial carcinoma. The World Cancer Research Fund (WCRF) states that being physically active can reduce the risk of developing cancer with obesity-related risk factors, namely breast cancer, colon cancer, and endometrial carcinoma. This decreased risk is thought to be due to physical activity that can reduce estrogen levels directly, or indirectly by reducing the number of adipose cells.[21,22]

Most of the recorded samples are domiciled in the city of Palembang, this result is related to the majority of patients who come to Dr. Mohammad Hoesin Hospital Palembang come from within the city of Palembang.[23] The development of health facilities for cancer care in South Sumatra has been quite advanced with the presence of several oncology specialists in cities and regencies such as Lubuk Linggau, Prabumulih, Banyuasin, and others, so that patients with endometrial carcinoma originating from outside the city of Palembang certainly has treatment options that are closer to where they live. This could be the reason why endometrial carcinoma patients at Dr. Mohammad Hoesin Hospital Palembang mostly reside in the city of Palembang.

The difference in percentage between patients from the city of Palembang compared to patients from outside the city of Palembang can also be caused by differences in lifestyle, where urban people tend to have a sedentary lifestyle, such as rarely walking and physical activity due to easy access to private, public,

Maj Patol Indones 2024; 33(2): 823-833
DOI: 10.55816/mpi.v33i3.630

P-ISSN 0215-7284
e-ISSN 25279106
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and private transportation. and online, and an unhealthy diet due to the large amount of food that is chemically processed, both fast food, food with coloring agents or additives, as well as preserved (shelf-stable) food. This lifestyle causes a higher risk group for endometrial carcinoma due to obesity, diabetes mellitus, and other metabolic diseases.[24,25]

The most common histopathological subtype was endometrioid adenocarcinoma. The results of this study are consistent with research by Dewi, P., and Budiana, I., at Sanglah General Hospital, Denpasar, where 65.4% of patients had endometrioid adenocarcinoma.[10]

Uterine cancer is a type of gynecological cancer with the highest prevalence, with a proportion of 90% endometrial carcinoma and only 10% uterine sarcoma. Endometrioid adenocarcinoma alone accounts for 83% of all cases of uterine cancer, while serous carcinoma only covers 4%-6%, and clear cell carcinoma only covers 1%-2%.[26]

Estrogen levels in a normal menstrual cycle continue to increase until the endometrium is 3mm-5mm thick, then there is a surge in LH that triggers ovulation. Entering the luteal phase, progesterone levels increase, resulting in negative feedback on estrogen levels. If progesterone fails to reduce estrogen levels, the functional layer of the endometrium will continue to proliferate until it exceeds 5mm in thickness, this abnormal proliferation is called endometrial hyperplasia which is a precancerous lesion in endometrioid adenocarcinoma.[27-29]

Until now, the etiology and pathogenesis of type II carcinoma could not be known with certainty. A mutation cascade during carcinogenesis of non-endometrioid carcinoma is thought to occur due to the progressive accumulation of TP53 gene mutations and overexpression of the p53 protein. [5,16,30,31]

The presence of several samples diagnosed with unknown adenocarcinoma subtype may be caused by the insufficient number of samples taken during a routine histopathological examination to identify specific components of a particular histopathological subtype.

Histopathological grade G3 is the most common finding in patients with endometrial carcinoma. Generally, patients with endometrial carcinoma come with the chief complaint of abnormal bleeding in the postmenopausal period due to the absence of adequate detection instruments to find signs of developing carcinoma which can be one of the factors causing patients to be diagnosed at a higher histopathological grade (G2-G3). Screening instruments such as pap smears which are generally used to detect carcinoma of the internal genital organs such as cervical neoplasia have been shown to have high false negative results when applied to detect endometrioid carcinoma, while the available screening instruments for detection of endometrioid carcinoma, namely the endometrial thickness test, is not recommended for asymptomatic patients at low risk because it is considered an invasive procedure. The lack of cancer awareness among patients and the absence of an endometrial carcinoma screening program from the government that is affordable for the wider community are also likely to cause many patients to be diagnosed with a higher histopathological degree.[15,18,26]

Many samples do not have data regarding the histopathological degree. It is possible this occurred because a number of data showed that determining histopathological subtypes could not be carried out, such as in samples with unknown adenocarcinoma subtype, which ultimately led to the histopathological grade being unable to be enforced. Another reason is the difficulty of enforcing the histopathological degree because the number of samples taken at the time of biopsy is too small, or there is an error at the sample processing stage so that the resulting preparation is under fixated or there is damage to the paraffin block so that the sample is degraded.[15,32,33]

The majority of endometrial carcinoma patients at Dr. Mohammad Hoesin Hospital Palembang have stage 1 carcinoma, this is probably due to the most common symptom of endometrial carcinoma, namely post-menopausal bleeding through the vagina, which can cause patients to feel very disturbed and immediately seek help by consulting a clinician.[28,30] Another thing that can be observed from the results of this study is that the prognosis tends to be good for endometrial carcinoma patients at Dr. Mohammad Hoesin Hospital Palembang, because in stage 1 endometrial carcinoma there are no metastases and the cancer is limited only to the endometrium or invades only the myometrium, meaning that the cancer is still limited to the uterine corpus area.[1]

Maj Patol Indones 2024; 33(2): 823-833
DOI: 10.55816/mpi.v33i3.630

P-ISSN 0215-7284
e-ISSN 25279106
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There are still many samples that do not have data on the tumor stage. This is probably due to problems in data collection. It should be noted that the data used in this study is from the cancer registration team at Dr. Mohammad Hoesin Hospital Palembang, which is a combination of medical record data, oncology KSM data, anatomical pathology, and others. Therefore many possibilities why the data was not found, including errors in the abstraction of cancer registration, medical record data, or other installations, as well as clinicians who do not include data on the stage of cancer on the patient's medical resume.

The results of the study showed that the majority of the samples did not have metastases related to the distribution of the sample cancer stages, where the majority were sampled with stage 1 endometrial carcinoma, which means that the cancer was not limited to the corpus uterus and there were no metastases to other organs, so there were not many complications and patients have a higher life expectancy.[1,4] This also supports the fact that the majority of these samples have a favorable prognosis.

Metastases in endometrial carcinoma are usually caused by malignant cells that enter the lymphatic vessels and are carried to regional lymph nodes. Anatomically, metastases to adnexa such as the ovaries and fallopian tubes are ascribed to para-aortic and para-caval lymph nodes, whereas regional metastases of endometrial carcinoma to the cervix and lower uterine segment (LUS) are ascribed to para-urethral and pelvic lymph nodes. Metastases to distant organs are rare, but they usually also originate from the lymphatics to related organs.[5,34-36]

According to Dong et al, the risk of lymph node metastasis in early-stage endometrial carcinoma is only 10%.[37] The route of spread of endometrial carcinoma through the lymph nodes has not been established, but it is known that lymph vessels in the uterus drain directly into the external iliac lymph nodes, and into the lymphatic ducts. Lymph in the uterine fundus drains through ducts in the ovaries into the para-aortic lymph nodes.[35,37]

Research by Liang et al showed that as many as 4.95% of patients with endometrial carcinoma had metastases to the ovaries. This risk is increased in patients older than 45 years old, patients with carcinoma that invades more than half of the myometrium, patients with carcinoma that invades the cervix, PLNI (Pelvic Lymph Node Invasion), patients with non-endometrioid carcinoma, patients with G3 carcinoma, and patients with LVSI (Lymphatic Vascular Space Invasion).[34]

Research by Li et al concluded that the most common distant metastases in endometrial carcinoma were metastases to the lungs (1.82%), then distant lymph nodes (1.6%), liver (0.9%), bone (0.65%), and brain (0.18%). The results of research by Li et al (2019) are in line with the results of this study, where out of 3 patients with metastases to other organs, 1 patient had metastases to the liver, while there was no information on metastatic sites for the other patients.[36,37]

The majority of endometrial carcinoma patients in all histopathological subtypes are aged 20-59 years old. This study is in line with the results of a study by Bharaswadkar, G., where endometrioid carcinoma was found more commonly in younger patients. Bharaswadkar, G., explained that as many as 81.2% of patients with endometrioid carcinoma are aged around 40 to 75 years old.[38]

Women over 60 years old have a greater risk of mutations in the TP53 gene, which is one of the main mutations found in non-endometrioid carcinomas such as serous carcinoma. Meanwhile, endometrioid carcinoma is more common in pre-menopausal women due to an estrogen-progesterone imbalance that causes excessive cell proliferation which then develops into carcinoma.[15,30,38]

Estrogen acts as a precursor to thicken the endometrial tissue during the menstrual cycle. In the proliferative phase of the normal menstrual cycle, after the completion of the menstrual phase, estrogen (estrone, estradiol, and estriol) stimulates the proliferation of cells of the functional lining of the endometrium due to positive feedback from the maturation of follicles in the ovaries. Estrogen levels continue to increase until the endometrium is 3 mm-5 mm thick, then there is a surge in LH that triggers ovulation. Entering the luteal phase, progesterone levels increase, resulting in negative feedback on estrogen levels. If progesterone fails to reduce estrogen levels, the functional layer of the endometrium will continue to proliferate until it exceeds 5 mm in thickness. This abnormal proliferation is called endometrial hyperplasia, which is a precancerous lesion in endometrioid adenocarcinoma.[27-29]

The majority of samples with G3 and G1 grade carcinomas were aged 20-59 years old, while the number of patients aged 20-59

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DOI: 10.55816/mpi.v33i3.630

P-ISSN 0215-7284
e-ISSN 25279106
Accredited by KEMENRISTEKDIKTI/Sinta-3

years old and ≥60 years old with grade G2 carcinoma was the same. The age distribution between G3 and G1 carcinoma patients tends to be the same, so there cannot be seen any particular tendency or trend in this distribution. It is possible that this is because the majority of patients are aged 20-59 years old so the data on patients with older ages are less.

Hag-Yahia et al (2019) explained that older age groups are prone to more aggressive cancers, so older age groups are prone to having carcinomas with a higher degree. [39] This trend was not seen in the results of this study due to the small number of samples with patients aged ≥60 years old, and the large number of samples with unknown histopathological degrees due to errors in biopsy sampling, preparation processing, and data storage or input.

Samples with metastases all have G3-grade carcinoma. These results show a trend where the higher the histopathological grade of carcinoma, the greater the possibility of metastasis.

According to WHO (2020), establishing the degree of endometrial carcinoma is done based on tissue abnormalities under a microscope and adjusting the possibility of these cells growing and spreading. A carcinoma designated as G3 has achieved >60% nonsquamous or non morular growth, which is the most severe grade of endometrioid adenocarcinoma and increases the likelihood of metastases via lymphatic vessels.[1,9,40]

Cancer metastasis occurs as a result of tumor cells detaching from the surrounding tissue, tearing the membranes and connective tissue, then digging into other tissues until they finally enter the blood vessels or lymphatic vessels. These cells do this by producing an enzyme that can digest the extracellular matrix. This process usually occurs in cancers with a higher histopathological degree, because the cancer cells are more differentiated and more malignant.[41,42]

CONCLUSION

Based on the results of this study, it can be concluded that the majority of endometrial carcinoma patients at Dr. Mohammad Hoesin Hospital Palembang Period 2008-2018 aged 20-59 years old, married, residing in the city of Palembang, and working as housewives. Histopathologically, the most common subtype found was endometrioid adenocarcinoma and the most common histopathological grade was G3 grade carcinoma. Most patients are diagnosed with stage 1 carcinoma without metastases.

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Maj Patol Indones 2024; 33(2): 823-833
DOI: 10.55816/mpi.v33i3.630