Characteristics of Epithelial Ovarian Cancer at RSUP Dr. Mohammad Hoesin Palembang Period from January 2020 to September 2023

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Abstract

Objective: To determine the characteristics of epithelial ovarian cancer patient at Dr. Mohammad Hoesin Palembang General Hospital from January 2020 to September 2023.

Methods: This study is a descriptive observational study utilizing secondary data from the Medical Records Department. The inclusion criteria included all patients diagnosed with epithelial ovarian cancer based on anatomical pathology results from the Medical Records Department at Dr. Mohammad Hoesin Palembang Hospital, covering the period from January 2020 to September 2023.

Results: A total of 153 patient medical records met the inclusion and exclusion criteria. The results of the study findings revealed that the majority of epithelial ovarian cancer patients were aged 45–59 years (pre-elderly) (51%), had an normal Body Mass Index of 18.5–22.9 kg/m² (57.5%), were most commonly diagnosed at FIGO Stage IIIC (42.5%), had no family history of the disease (98.7%), and were nulliparous (32.7%)

Conclusion: Epithelial ovarian cancer patients were predominantly found in the pre-elderly age group, with a normal Body Mass Index, the majority diagnosed at stage IIIC, without a family history, and nulliparous.

Key words: Characteristics, Epithelial ovarian cancer

Karakteristik Kanker Ovarium Epitel di RSUP Dr. Mohammad Hoesin Palembang Periode Januari 2020 – September 2023

Abstrak

Tujuan: Mengetahui karakteristik pasien kanker ovarium epitel di RSUP Dr. Mohammad Hoesin Palembang periode Januari 2020 – September 2023

Metode: Penelitian ini merupakan deskriptif observasional menggunakan data sekunder dari Instalasi Rekam Medis. Kriteria inklusi, yaitu seluruh pasien yang didiagnosis kanker ovarium epitel berdasarkan hasil patologi anatomi di Instalasi Rekam Medis RSUP Dr. Mohammad Hoesin Palembang periode Januari 2020 – September 2023.

Hasil: Mayoritas pasien kanker ovarium epitel berusia 45 – 59 tahun (pra-lanjut) (51%), Indeks Massa Tubuh normal 18,5–22,9 kg/m² (57,5%), mayoritas pada stadium IIIC (42,5%), tidak memiliki riwayat keluarga (98,7%), dan nuliparitas (32,7%).

Kesimpulan:Penderita kanker ovarium epitel sebagian besar ditemukan pada kelompok usia pra-lansia, dengan ndeks Massa Tubuh normal, sebagian besar berada pada stadium IIIC, tidak memiliki riwayat keluarga, dan nuliparitas.

Kata kunci: Kanker Ovarium Epitel, Karakteristik.

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Introduction

Ovarian cancer has the highest mortality rate among gynecologic cancers.[1] It is the seventh most common cancer and the eighth leading cause of cancer-related deaths among women worldwide.[2] Among gynecologic cancers, ovarian cancer ranks third in prevalence after cervical and uterine cancer.[1]

According to data from the International Agency for Research on Cancer, the global incidence of ovarian cancer was estimated at 295,414 new cases in 2018, accounting for 3.4% of all cancers in women. The 2020 Global Cancer Burden data reported 313,959 new cases of ovarian cancer (1.6% of all cancer cases) and 207,252 deaths (2.1% of all cancer-related deaths) annually. In 2020, there were 224,133 cases of ovarian cancer worldwide.[3]

According to the World Health Organization (WHO), in 2020, the prevalence of ovarian cancer was highest in the Western Pacific, with 61,402 cases, followed by Europe (58,326 cases) and Southeast Asia (46,132 cases). Indonesia ranked fifth, with 10,118 cases, following China (40,412 cases), India (28,115 cases), the United States (19,849 cases), and Russia (10,293 cases).[3] The American Cancer Society estimates that by 2023, there will be 19,710 new cases and 13,270 deaths from ovarian cancer in the United States.[4]

The development of ovarian cancer is often unnoticed by patients because there are no symptoms in the early stages. As a result, most cases are diagnosed at an advanced stage, leading to increased prevalence and mortality. Ovarian cancer typically causes symptoms only after it has metastasized to the peritoneal cavity. For this reason, it is often referred to as The Silent Killer.[5]

Epithelial ovarian cancer is the second-leading cause of death among gynecologic cancers.[6] Approximately 90% of ovarian cancer cases originate from epithelial cells. More than 70% of epithelial ovarian cancers are diagnosed at an advanced stage, with a five-year survival rate of approximately 48%.[7]

The average age at diagnosis for ovarian cancer is between 50 and 59 years, with the incidence increasing in women over 65.[8] However, recent studies have shown a rising number of ovarian cancer cases in women under 50.[9] Some literature suggests that obesity is significantly correlated with ovarian cancer, as adults with a Body Mass Index (BMI) ≥30 have a higher risk of developing the disease.[2]

A family history of ovarian cancer in a close relative, such as a mother, daughter, or sister, increases the lifetime risk of developing ovarian cancer threefold. This risk is even higher if two or more immediate family members have been diagnosed with the disease. A history of childbirth (parity) is considered a protective factor against ovarian cancer. Nulliparous women, or those who have never been pregnant, have twice the risk of developing ovarian cancer. This increased risk is associated with a prolonged period of ovulation.[10]

Methods

This study was a descriptive observational study utilizing secondary data from the Medical Records Department at Dr. Mohammad Hoesin Palembang Hospital, covering the period from January 2020 to September 2023. A total sampling method was used to include all epithelial ovarian cancer patients who met the inclusion criteria.

The inclusion criteria consisted of all patients diagnosed with epithelial ovarian cancer based on anatomical pathology results from the Medical Records Department at Dr. Mohammad Hoesin Palembang Hospital between January 2020 and September 2023. A total of 153 patients met the inclusion criteria according to the study variables.Data

were analyzed using univariate analysis with the Statistical Package for the Social Sciences (SPSS) version 22.

This study was approved by the Research Ethics Committee of Universitas Sriwijaya, with ethical clearance number 231-2023 and research permit number 5135/1947/UN9.FK/TU.SB5/2023.

Results

Table 1 presents the distribution of epithelial ovarian cancer patients at Dr. Mohammad Hoesin Palembang Hospital based on age. Among the 153 study participants, the highest distribution was observed in the 45–59 age group (pre-elderly), with a total of 78 patients (51%). The lowest distribution was found in the 10–19 age group (adolescents), with only 2 patients (1.3%). In the 19–44 age group (adults), there were 50 patients (32.7%), while in the ≥60 age group (elderly), there were 23 patients (15%).

Table 2 presents the distribution of epithelial ovarian cancer patients at Dr. Mohammad Hoesin Palembang Hospital based on Body Mass Index (BMI). Among the 153 study participants, the highest distribution was found in the normal BMI group (18.5–22.9 kg/m²), with a total of 88 patients (57.5%), while the lowest distribution was in the obesity II BMI group (≥30 kg/m²), with 9 patients (5.9%). In the underweight BMI group (<18.5 kg/m²), there were 13 patients (8.5%). In the overweight at-risk group (23–24.9 kg/m²), there were 20 patients (13.1%), and in the obesity I group (25–29.9 kg/m²), there were 23 patients (15%).

Table 3 presents the distribution of epithelial ovarian cancer patients at Dr.

Table 1 Distribution of Epithelial Ovarian Cancer Patients by Age.

Age	Frequency (n)	Precentage %)
Adolescents (10–19 years)	2	1,3
Adults (19–44 years)	50	32,7
Pre-elderly (45–59 years)	78	51
Elderly (≥ 60 years)	23	15
Total	153	100

Table 2 Distribution of Epithelial Ovarian Cancer Patients Based on Body Mass Index (BMI).

Body Mass Index (BMI)	Frequency (n)	Precentage (%)
Underweight (< 18,5 kg/m²)	13	8,5
Normal (18,5–22,9 kg/m²)	88	57,5
Overweight with risk (23–24,9 kg/m²)	20	13,1
Obesity I (25–29,9 kg/m²)	23	15
Obesity II (≥ 30 kg/m²)	9	5,9
Total	153	100

Table 3 Distribution of Epithelial Ovarian Cancer Patients by Stage.

Stage	Frequency (n)	Precentage (%)
Stage I	15	9,8
Stage IA	5	3,3
Stage IB	25	16,3
StageIC	3	2
Stage II	1	0,7
Stage IIA	3	2
Stage IIB	4	2,6
Stage IIIA1	2	1,3
StageIIIA2	3	2
Stage IIIB	3	2
Stage IIIC	65	42,5
Stage IV	7	4,6
Stage IVA	6	3,9
Stage IVB	11	7,2
Total	153	100

Table 4 Distribution of Ovarian Epithelial Cancer Patients Based on Family History.

Family History	Frequency (n)	Precentage (%)
No	151	98,7
Yes	2	1,3
Total	153	100

Mohammad Hoesin Palembang Hospital based on cancer stage. Among the 153 study participants, the highest distribution was found in patients diagnosed with stage IIIC epithelial ovarian cancer, totaling 65 patients (42.5%), while the lowest distribution was in patients with stage II, with only 1 patient (0.7%).

In stage I, there were 15 patients (9.8%), including 5 patients (3.3%) at stage IA, 25 patients (16.3%) at stage IB, and 3 patients (2%) at stage IC. In stage II, there were 3 patients (2%), including 3 patients (2%) at stage IIA and 4 patients (2.6%) at stage IIB. For stage III, there were 2 patients (1.3%) at stage IIIA1, 3 patients (2%) at stage IIIA2, 3 patients (2%) at stage IIIB, and 65 patients (42.5%) at stage IIIC. In stage IV, there were 7 patients (4.6%), including 6 patients (3.9%) at stage IVA and 11 patients (7.2%) at stage IVB.

Table 4 presents the distribution of epithelial ovarian cancer patients at Dr. Mohammad Hoesin Palembang Hospital based on family history. Among the 153 study participants, the majority (98.7%) had no family history of the disease, totaling 151 patients, while only 2 patients (1.3%) had a

Table 5 Distribution of Ovarian Epithelial Cancer Patients Based on Number of Parities.

Parities	Frequency (n)	Precentage (%)
Never given birth	50	32,7
1× (*primipara*)	33	21,6
2–3× (*multipara*)	45	29,4
≥ 4× (*grand multipara*)	25	16,3
Total	153	100

family history of ovarian cancer.

Table 5 presents the distribution of epithelial ovarian cancer patients at Dr. Mohammad Hoesin Palembang Hospital based on parity. Among the 153 study participants, the highest distribution was found in patients who had never given birth (nulliparous), totaling 50 patients (32.7%), while the lowest distribution was in patients who had given birth to four or more children (grand multipara), totaling 25 patients (16.3%). Additionally, 33 patients (21.6%) had given birth to one child (primipara), while 45 patients (29.4%) had given birth to two or three children (multipara).

Discussion

The frequency distribution of Body Mass Index (BMI) in this study is based on the WHO classification: underweight (<18.5 kg/m²), normal (18.5–22.9 kg/m²), overweight at risk (23–24.9 kg/m²), obesity I (25–29.9 kg/m²), and obesity II (≥30 kg/m²). The distribution of BMI among epithelial ovarian cancer patients at Dr. Mohammad Hoesin Palembang General Hospital from January 2020 to September 2023 was predominantly in the normal BMI group (18.5–22.9 kg/m²), with a total of 88 patients (57.5%). The findings of this study are consistent with research by Fatimah (2023), which reported that most patients at Ibnu Sina Hospital Makassar had a normal BMI, totaling 32 patients (45.1%).[14] Similarly, Handoko's study (2023) at Bethesda Hospital Yogyakarta found that the majority of patients had a normal BMI, totaling 47 patients (40%).[15]

This finding differs from the study by Fachlevy (2011) at Wahidin Sudiro Husodo General Hospital Makassar, which stated that patients with a BMI >30 kg/m² have twice the risk of developing ovarian cancer compared to women with a BMI <30 kg/m².[16] Similarly, research by Greer et al. (2006) found that BMI significantly increased the risk of ovarian cancer by 2.5 times in nulliparous women but not in women who had given birth.[17] Additionally, obesity increases the risk of ovarian cancer by 10% compared to women with a normal BMI.[18]

In obese women, gonadotropin-releasing hormone (GnRH) secretion is impaired. Increased estrogen and testosterone serum levels trigger a negative feedback mechanism, leading to decreased GnRH secretion. Estrogen has a strong proliferative effect on ovarian cancer cells. Aromatase, present in adipocytes and ovarian cancer cells, is responsible for converting testosterone to estradiol, resulting in high estrogen levels in overweight women. The continuous influence of estrogen on the ovarian epithelium induces proliferation.[11]

According to the International Federation of Gynecology and Obstetrics (FIGO) in 2018, ovarian cancer is classified into the following stages: IA, IB, IC, IC1, IC2, IC3, II, IIA, IIB, III, IIIA1, IIIA2, IIIB, IIIC, IV, IVA, and IVB.[13]

The distribution of epithelial ovarian cancer stages at Dr. Mohammad Hoesin

Palembang General Hospital from January 2020 to September 2023 was predominantly found in patients diagnosed at stage IIIC, totaling 65 patients (42.5%). This finding aligns with Muthmainnah's research (2023), which reported that most patients at Ibnu Sina Hospital Makassar were diagnosed at stage IIIC (32 patients, 35.6%).[19] Similarly, Agusweni's research (2020) found that the majority of patients at Arifin Achmad Hospital, Riau Province, were at stage IIIC, totaling 62 patients (70.5%).[20]

The progression of ovarian cancer is generally unnoticed by patients because it presents no symptoms in the early stages. As a result, most patients are diagnosed at an advanced stage.[5] Approximately 70% of ovarian cancer cases are diagnosed at an advanced stage, where the cancer has spread to the peritoneum and metastasized to retroperitoneal lymph nodes (stage III) or more extensively (stage IV), with a five-year survival rate of only 15–20%. In contrast, patients diagnosed at stages I and II have significantly higher survival rates, estimated at 90% and 70%, respectively.[21]

Despite advancements in chemotherapeutic treatments, the prognosis remains relatively poor, with a five-year relative survival rate of only 30%. Women diagnosed with early-stage ovarian cancer have significantly higher survival rates than those diagnosed at an advanced stage. Unfortunately, the majority of ovarian cancer cases are detected at an advanced stage. Retrospective studies indicate that nonspecific symptoms-such as abdominal pain, bloating, changes in bowel habits, and urinary tract or pelvic discomfort-are most commonly observed in women with advanced ovarian cancer. Additionally, patients presenting with nonspecific gastrointestinal symptoms are sometimes misdiagnosed with irritable bowel syndrome.[22]

The distribution of family history among epithelial ovarian cancer patients at Dr. Mohammad Hoesin Palembang General Hospital from January 2020 to September 2023 was highest in the group of patients with no family history, totaling 151 patients (98.7%). This finding aligns with Nababan's research (2021), which reported that most patients had no family history, totaling 40 patients (95.2%) at Prof. Dr. W.Z. Johannes Hospital in Kupang City, East Nusa Tenggara.[23] Similarly, Agusweni's study (2020) found that the majority of patients had no family history, with 63 patients (71.6%) at Arifin Achmad Hospital in Riau Province.[20]

Sometimes, the risk of ovarian cancer is estimated based on a patient's family history. Family history can help identify women at high risk of developing ovarian cancer.[22] A family history of ovarian cancer in first-degree relatives-such as mothers, daughters, and sisters-increases the lifetime risk of ovarian cancer threefold. Additionally, having two or more first-degree relatives with a history of premenopausal breast cancer further increases the risk of ovarian cancer. Approximately 75% of inherited ovarian cancer cases are caused by germline mutations in BRCA1, BRCA2, or other homologous recombination deficiency genes.[10] Women with BRCA1 mutations have a 30% lifetime risk of developing ovarian cancer, while those with BRCA2 mutations have a 27% lifetime risk.[12] Hereditary Nonpolyposis Colorectal Cancer (HNPCC) is associated with a 9% to 12% increased lifetime risk of ovarian cancer, in addition to an elevated risk of endometrial cancer.[22]

About 10% of ovarian cancers are hereditary, with BRCA1 and BRCA2 mutations accounting for the majority (about 90%) of inherited ovarian cancer cases. The lifetime risk varies between 15% and 66%, suggesting the influence of genetic or environmental factors.[22] The distribution of parity among epithelial ovarian cancer patients at Dr. Mohammad Hoesin Palembang General Hospital from January

2020 to September 2023 was highest among patients who had never given birth, totaling 50 patients (32.7%). This finding aligns with Fatimah's research (2023), which reported that the majority of patients with parity ≤2 comprised 51 patients (71.8%) at Ibnu Sina Hospital Makassar.[14]

Parity may serve as a protective factor against ovarian cancer.8 In a collaborative analysis of 12 case-control studies, women who had at least one full-term pregnancy had a significantly lower risk than nulliparous women (Whittemore, 1992). A cohort study also found similar results (Adami et al., 1994).[17] Across all histologic types, women who had given birth consistently had a lower risk of developing epithelial ovarian cancer compared to nulliparous women.[24] Nulliparity is associated with prolonged periods of recurrent ovulation. Childless women have twice the risk of developing ovarian cancer. The risk decreases with each live birth and reaches its lowest point in women who have given birth five times.[10] The incessant ovulation theory suggests that repeated ovulation leads to cumulative damage to the ovarian epithelium over time. The healing process requires time, and if epithelial damage occurs continuously before the previous repair is complete, it may result in neoplastic cell changes.[25]

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