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Original Article

Serous epithelial ovarian cancer: Retrospective analysis of 260 cases

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ABSTRACT

Objective: To evaluate the outcomes of patients who were followed up and treated for serous epithelial ovarian tumor.

Material and methods: This retrospective study included 260 patients who were diagnosed with serous epithelial ovarian cancer, treated and followed up at Kanuni Sultan Suleyman Training and Research Hospital between January 2002 and December 2019.

Results: The mean age of the patients participated in the study was 53.4±11.6 years. Of the patients, 79.7% had advanced stage and 82.4% had grade 3 tumors. The rate of complete or optimal surgery was 88.2%, while the rate of suboptimal surgery was 11.2%. While 82% of the patients received adjuvant chemotherapy, 15.7% received neoadjuvant chemotherapy. Of the patients, 80.2% had a cancer antigen 125 (CA-125) value higher than 35 U/mL. Despite primary cytoreductive surgery and platinum-based adjuvant chemotherapy, the recurrence rate was 66.2%, and the progression-free survival and overall survival rates were 34.7±41.0 and 50.5±40.0 months, respectively.

Conclusion: The majority of serous epithelial ovarian cancers are diagnosed at an advanced stage. Despite primary cytoreductive surgery and subsequent platinum-based chemotherapy, the recurrence rates are quite high.

Keywords: serous epithelial ovarian cancer; cytoreductive surgery; chemotherapy; overall survival

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Introduction

Ovarian cancer is the deadliest gynecological cancer [1]. Although it is seen in all age groups, it is mostly diagnosed between the ages of 55 and 64 years [2].Epithelial ovarian cancers account for almost 90% of all ovarian cancers, while the remaining 5% are germ cell ovarian tumors and about 5% are sex cord-stromal tumors [1]. They are the most common serous ovarian tumors among the epithelial types [1].Although the most important prognostic factor for these tumors is diagnosis at the early stage when the tumors are confined to the ovary, the majority of them are diagnosed at an advanced stage [3]. Therefore, despite surgical and medical treatment, the average five-year survival is around 45% [4]. However, the average five-year survival rate is around 92% for stage 1 ovarian tumors, while it is between 17-28% for advanced stage ovarian tumors [4-5]. The primary treatment of ovarian tumors is surgery [1].

The goal of current surgery (debulking) is to perform a complete staging surgery and not to leave any tumors inside [6-7].However, fertility-sparing surgery can be performed on those who wish to conceive, provided that the tumor is confined to the ovary, an early stage epithelial tumor, a germ cell ovarian tumor, or a sex cord-stromal ovarian tumor [6-7]. Adjuvant chemotherapy to be administered after surgery is determined based on the histological type and stage of the tumor [8]. Neoadjuvant chemotherapy administered in some centers and to some patients has not been shown to be superior to postoperative adjuvant chemotherapy [9].

In this study, the outcomes of patients who were followed up and treated for serous epithelial ovarian tumor in our hospital were evaluated.

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Material and methods

This retrospective study included 260 of 268 patients who were diagnosed with serous epithelial ovarian cancer, treated and followed up at Kanuni Sultan Suleyman Training and Research Hospital between January 2002 and December 2019 and who had complete medical records. Ethical committee approval was obtained prior to the study (26.06.2020/10840098-604.01.01-E.17851). The information of the patients included in the study was accessed through the hospital data processing system and patient files. Some of the information that was not included in the file was reached by calling the patients by phone. Patients who had missing information in the file and could not be reached by phone were not included in the study. Also, patients who were treated and followed up for recurrent serous epithelial ovarian disease were not included.

Patients' age, tumor stage, surgery (complete, optimal, suboptimal), frozen results, consistency between frozen result and final pathology report, tumor grade, cancer antigen 125 (CA-125) value, adjuvant and neoadjuvant chemotherapy status, progression-free survival (PFS), and overall survival (OS) rates were analyzed. Complete surgery was evaluated as no macroscopic residual tumor, optimal surgery as the largest tumor diameter smaller than 1 cm, suboptimal surgery was evaluated as the largest tumor diameter greater than 1 cm. The patients were divided into two groups according to the CA-125 value as Group 1 (CA-125 < 35 U/mL) and Group 2 (CA-125 ≥ 35 U/ml). In addition, PFS and OS rates were calculated according to grade, type of surgery, and stage.

Statistical analysis

The SPSS version 22 (Statistical Package for and Social Sciences) software package was used for data analysis. Measuring variables were presented as mean ± standard deviation (sd). Categorical variables were presented as number and percentage (%).

Results

The mean age of the patients participated in the study was 53.4±11.6 years. Of the patients, 79.7% had advanced stage and 82.4% had grade 3 tumors. The rate of complete or optimal surgery was 88.2%, while the rate of suboptimal surgery was 11.2%. While 82% of the patients received adjuvant chemotherapy, 15.7% received neoadjuvant chemotherapy. Of the patients, 80.2% had a CA-125 value higher than 35 U/mL, while the remaining 19.2% had a CA-125 value lower than 35 U/mL (Table 1). While the diagnosis was made preoperatively in 15.4% of the patients, the diagnosis was made by intraoperative frozen examination in the remaining 84.6%. Also, the consistency between frozen and final pathology result was 96.2% (Table 1).

The PFS and OS rates of all patients were 34.7±41.0 and 50.5±40.0 months, respectively. While these rates decreased with increasing stage and grade, they increased in complete or optimal surgery compared to incomplete surgery (Table 2).

Discussion

Since serous epithelial ovarian tumors are generally asymptomatic, most of them are diagnosed at an advanced stage [4]. Similarly, 79.7% of the ovarian tumors diagnosed in our study were advanced stage tumors, and these results are similar to the results shown in the literature. Similar to our study, Guzel et al. also found this rate as 80.8% in their study [10].On the other hand, PFS and OS rates decrease in serous ovarian cancer with increasing stage [11]. Similarly, the PFS and OS rates in our study decreased as the stage of the disease increased.

Low-grade serous ovarian cancers account for approximately 5-10% of all serous ovarian cancer at diagnosis, while the remaining is high-grade serous ovarian cancers [12]. Similarly, in our study, 92% of the patients had high-grade serous ovarian cancer at diagnosis, while the remaining 8% had low-grade serous ovarian cancer. On the other hand, as the grade of serous ovarian cancers increases, OS rates decrease [13]. As stated in the literature, both PFS and OS rates decreased as the grade increased in our study.

Table 1. General characteristic of the patients

	N	%
Stage 1	41	15.7
1a	15	
1b	0	
1c	26	
Stage 2	12	4.6
2a	2	
2b	7	
2c	3	
Stage 3	173	66.6
3a	5	
3b	18	
3c	150	
Stage 4	34	13.1
4a	27	
4b	7	
Grade		
1	21	8.0
2	25	9.6
3	214	82.4
Surgery		
Complete	191	74.3
Optimal	40	15.4
Suboptimal	29	11.1
Chemotherapy		
None	6	2.3
Neoadjuvant	41	15.7
Adjuvant	213	82.0
Ca 125, U/mL		
<35	50	19.2
≥35	210	80,8
Recurrence		
Yes	172	66.2
None	88	33.8
Consistency between frozen and final pathology result		
Yes	212	96.2
None	8	3.8

The standard treatment of serous epithelial ovarian tumors is cytoreductive surgery and subsequent platinum-based adjuvant chemotherapy [1]. Although preoperative neoadjuvant chemotherapy is initiated in some centers, neoadjuvant chemotherapy has not been shown to be superior to adjuvant chemotherapy [9]. Adjuvant chemotherapy and neoadjuvant chemotherapy rates vary from center to center. In our study, the rate of adjuvant chemotherapy was 82%, while the rate of neoadjuvant chemotherapy was 15.7%. In cytoreductive surgery, OS and PFS rates increase in proportion to complete cytoreduction rates [14,15]. Similarly, in our study, the rates of PFS and OS were found to be high in parallel with the complete cytoreduction rates.

It has been detected to be above the normal value (35 U/ml) in 50% of early-stage ovarian cancers and 90% of advanced-stage ovarian cancers [16]. Similarly, in our study, the CA-125 value was higher than 35 U/ml in 80.8% of the patients.

Indeed, 79.7% of our patients had advanced stage serous ovarian tumors. This rate supports the high Ca 125 value in our study.

Despite primary cytoreductive surgery and subsequent platinum-based adjuvant chemotherapy, the recurrence rate of serous ovarian tumors is about 70% [17].

Table 2. PFS and OS rates by tumor stage, grade, and surgery type

	PFS months	OS months
Stage		
1	54.9±47.2	67.2±48.3
2	46.7±62.8	55.7±3.3
3	31.5±38.7	50.0±38.3
4	14.8±19.1	26.5±23.9
Grade, mean±sd		
1	54.9±64.8	64.3±60.6
2	58.2±49.4	63.3±46.6
3	26.5±34.4	46.0±35.5
Surgery		
Complete	41.1±44.1	54.1±43.3
Optimal	23.8±29.4	44.9±31.6
Suboptimal	9.9±13.4	37.2±34.0
Total	34.7±41.0	50.5±40.0

PFS: progression-free survival, OS: overall survival, sd: standard deviation

Similar to these results, the recurrence rate in our study was 66.2%. In addition, the mean age of our patients was 53.4 ± 11.6 years. In the study by Guzel et al. from our country, the most common age range of patients was 50-59 years, which supports our mean patient age.

The accuracy rate of frozen for demonstrating malignancy in ovarian cancers has been shown in the range of 73-98% [18]. Similar to these results shown in the literature, the rate of correct diagnosis of frozen was 96.2% in our study.

While the PFS rate was 34.7 months in our study, the OS rate was 50.5 months, and these rates are similar to the rates shown in the literature [19]. Moreover, in line with the literature, the PFS and OS rates decreased as grade and stage increased; the complete surgery group had the highest rates, while the suboptimal surgery group had the lowest rates [19]

In conclusion, most of serous epithelial ovarian cancers are diagnosed at an advanced stage. The absence of macroscopic tumors in the surgery and the subsequent platinum-based chemotherapy have a very important effect on PFS and OS rates. Despite primary cytoreductive surgery and platinum-based adjuvant chemotherapy, the recurrence rates are quite high.

Disclosure

Authors have no potential conflicts of interest to disclose.

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