Original Article

A Five Year Review of Ovarian Cancer at a Tertiary Institution in Lagos, South-West, Nigeria

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Abstract

Background: Ovarian cancer constituted 7% of gynecological malignancies seen in Lagos, Nigeria and was the second most common cause of death among women in Lagos, Nigeria. **Objectives:** The aim is to determine the prevalence of ovarian cancer and characteristics of patients with ovarian cancer at a Tertiary Institution in Lagos. **Patients and Methods:** This was a retrospective review of all the patients with histologically confirmed ovarian cancer admitted to the gynecological ward of the hospital over a period of 5 years. Relevant information was extracted from the ward register and patients medical case records. Data were analyzed using Epi-info statistical software package and results were then presented in tables and chart. **Results:** Fifty cases of ovarian cancer were admitted during the period under review. This constituted 1.7% of the gynecological admission cases and 8.2% of the gynecological malignancies managed in the hospital during the study. It was the second most common gynecological malignancy. The mean age of the ovarian cancer patients was 45.7 ± 4.3 years with the majority of the patients (58%) being premenopausal, 34% being nulliparous and only 16% having one or more risk factors. The abdominal swelling was the most common presenting symptom with 80% of the patients presenting with advanced disease. Epithelial ovarian cancer was the most common histological variant. The most common treatment modality was surgery and chemotherapy. The patient default rate was 64%. **Conclusion:** Ovarian cancer cases are on the increase. Failure of optimal management is worsened by the delay in presentation and poor compliance to treatment with high patients' default rate.

Key words: Epithelial, Lagos, ovarian cancer, prevalence

Introduction

Ovarian cancer, accounting for 4% of all cancers in women, is the sixth most common cancer among women.[1] Worldwide, there are more than 200,000 new cases of ovarian cancer diagnosed with approximately 6.6 new cases per 100,000 women per year.[1] Studies have shown that ovarian cancer is the most common gynecological cancer in the United Kingdom[2] and the second most common gynecological malignancy in the USA.[3] Several studies from Africa and Nigeria have shown that ovarian cancer is the second most common gynecological cancer in developing countries.[4-7] Ovarian cancer constituted 7% of gynecological malignancies in a study at the Lagos University Teaching Hospital (LUTH) and was the second most common cause of death among women admitted on the gynecological ward of the hospital during the study.[8]

The incessant ovulation theory (as occurs in nulliparity, ovulation induction, late menopause and late childbearing) and excess gonadotrophin secretion are the two main theories proposed to be responsible for the malignant change in the ovarian epithelium.[9] Other associated etiological risk factors include increasing age, postmenopausal status, family history of ovarian cancer, estrogen replacement therapy, race, environmental factors, dysgenetic gonads, and Peutz-Jegher's syndrome.[4,10,11] Bilateral tubal ligation and conditions associated with reduced ovulatory cycles such as the use of combined oral contraceptive pills, breastfeeding, and pregnancy at an early age and late menarche are however protective.[11-13]

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Ovarian cancer has the highest case fatality rate among gynecological cancers worldwide, due partly to its late presentation.[14] Most of the women (70%) with the disease present at advanced stages when the survival rate is poor. It was previously believed that the earlier stages of the disease were asymptomatic;[3] however, studies have shown that in 93% of cases women with ovarian cancer do report symptoms several months before diagnosis,[15] but in other nongynecological units. Since there are no accepted screening methods yet, greater awareness of symptoms potentially associated with ovarian cancer might lead to earlier diagnosis which might improve survival.[13] Due to delay in childbearing, reducing parity, decreasing fertility rate, increasing use of ovulation induction drugs[14] and with the increasingly available different sophisticated investigative facilities, the incidence seems to be increasing in the developing countries. However the resulting mortality does not appear to be reducing, rather it is high and unsatisfactory despite the combination of different treatment modalities. This study is therefore aimed to determine the prevalence, risk factors, clinical presentation, and outcome after management of patients with ovarian cancer seen in a Tertiary Institution in Lagos, Nigeria over a 5-year period.

Patients and Methods

The study is a retrospective review of all the patients with histologically confirmed ovarian cancer admitted to the gynecological wards of the LUTH, Lagos, Southwest Nigeria between January 1, 2008, and December 31, 2012.

The names and hospital numbers of patients with suspected ovarian cancer managed in the hospital were retrieved from the gynecological ward register and subsequently, the names and hospital numbers of patients with histologically confirmed ovarian cancers were also retrieved from the register at the Department of Anatomic and Molecular Pathology. The case notes of all these patients were retrieved from the medical records department of the hospital. The total number of gynecological malignancies seen in the hospital as well as the total number of gynecological admissions during the study was also extracted from the gynecological wards register. Information on age, risk factors, clinical presentation, histopathological types, treatment options, and outcomes were extracted from the case files of the patients with histologically confirmed ovarian cancer. Data were analyzed using Epi-info statistical software package (Version 7.2, Centres for Disease Control and Prevention, USA) and results were then presented in tables as frequencies and percentages.

Ethical approval for the study was obtained from the hospital's Health Research and Ethics Committee before the commencement of the study.

Results

There were a total of 2943 gynecological admissions and 611 cases of gynecological malignancies during the study. One hundred and forty-nine patients with suspected ovarian malignancy were admitted during the study whereas the case notes of 134 of these patients were successfully retrieved from the medical records department of the hospital. However, only 50 of them have histologically confirmed malignant ovarian cancers with the remaining 84 having benign ovarian pathologies. These 50 cases constituted 1.7% of the gynecological admissions and 8.2% of the gynecological malignancies managed in the hospital accounting for the second most common gynecological malignancy during the study.

Table 1 shows that the largest proportions of patients were seen in the age groups 40–49 years and 60–69 years, respectively (22% each). The mean age of the ovarian cancer patients was 45.7 ± 4.3 years. A large proportion (34%) of the patients was shown to be nulliparous with an overall mean parity of 1.29 ± 0.13 while an even larger proportion (60%) have not reached the menopausal age yet. Only eight (16%) of the patients had risk factors for ovarian cancers. Two patients (4%) had a previous history of ovulation induction with clomiphene citrate. Four patients (8%) had family histories of cancers, among which 2 (4%) patients had family history of breast cancer in the mother and sister, respectively, one patient (2%) had a family history of gestational choriocarcinoma in her maternal grandmother and the last patient (2%) had a family history of ovarian carcinoma in her sister. Two (2) patients (4%) had a personal history of associated cancers.

In Table 2, abdominal swelling and abdominal pain were the most common symptoms recorded occurring in 92% and 42% of the patients, respectively. One patient (2%)

Table 1: Sociodemographic characteristics of study patients

Characteristics	Frequency (*n*)	Percentage
Age (years)		
10-19	4	8
20-29	7	14
30-39	8	16
40-49	11	22
50-59	8	16
60-69	11	22
70-79	1	2
Parity		
0	17	34
1-2	12	24
3-4	8	16
5-6	8	16
7-8	4	8
9	1	2
Menopausal status		
Premenarchial	1	2
Premenopausal	29	58
Postmenopausal	20	40
Total	50	100

Table 2: Clinical presentations

Clinical presentations	Frequency (*n*)	Percentage
Symptoms		
Abdominal swelling	46	92
Abdominal pain	21	42
Weight loss	12	24
Early satiety	11	22
Anorexia	9	18
Constipation	5	10
Intermenstrual bleeding	4	8
Nausea	3	6
Amenorrhea	3	6
Postmenopausal bleeding	2	4
Urinary frequency	2	4
Bloating	2	4
Leg swelling	2	4
Vaginal protrusion	1	2
Incidental finding	1	2
Clinical findings		
Abdominal distension	31	62
Abdominal mass	30	60
Ascites	22	44
Cachexia	21	42
Pallor	7	14
Pedal edema	4	8
Jaundice	2	4
Hepatomegaly	2	4
Abdominal tenderness	1	2
Pleural effusion	1	2
Uterovesical prolapse	1	2

was discovered incidentally while having surgery (total abdominal hysterectomy) for fibroids. Abdominal distension and abdominal mass were the commonest clinical finding occurring in 62% and 60% of patients, respectively. All the patients presented with at least one symptom, with most of the patients presenting with two symptoms (34%) whereas 24% presented with just one symptom.

The majority of the patients (80%) presented at advanced stages with Stage III and IV, constituting 48% and 32%, respectively [Table 3]. In Table 3, serous cystadenocarcinoma and granulosa cell tumors were the most common histological variants of the tumor, accounting for 42% and 20% of cases, respectively. All the patients aged 10–19 years had germ cells ovarian cancer comprising of one case of dysgerminoma and three cases with granulosa cell tumor. As shown in Table 3, the majority of the patients (60%) had a combination of surgery and 6 complete courses of chemotherapy comprising of carboplatin/paclitaxel combination, whereas 17 (34%) had surgical cytoreduction only among whom 5 (10%) had secondary cytoreduction due to tumor recurrence. None of the patients had only chemotherapy. In Table 4, a larger proportion of patients (83.3%) with the earliest stage disease (Stage I) presented within the first 4 months of onset of their symptoms

Table 3: Stage of the disease at presentation, histological type of the tumor, and treatment modalities

Stage of disease/histology/ treatment modalities	Frequency (*n*)	Percentage
Stage		
I	6	12
II	4	8
III	23	46
IV	17	34
Histological type		
Serous cystadenocarcinoma	21	42
Mucinous cystadenocarcinoma	2	4
Endometroid type	1	2
Embryonal carcinoma	1	2
Granulosa cell tumor	10	20
Immature teratoma	4	8
Malignant Brenner tumor	1	2
Secondary metastatic tumor	2	4
Yolk sac tumor	5	10
Dysgerminoma	1	2
Mixed germ cell tumor	1	2
Ovarian choriocarcinoma	1	2
Treatment modalities		
Surgery	17	34
Chemotherapy	3	6
Surgery and chemotherapy	30	60
Total	50	100

Table 4: Duration of symptoms and stage at presentation

Symptoms duration (in months)	Symptoms duration and stage of disease				
	Stage at presentation (%)				
	I	II	III	IV	Total
1-4	5 (83.3)	2 (50.0)	2 (8.7)	1 (5.9)	10 (20.0)
5-8	1 (16.7)	0 (0.0)	6 (26.1)	1 (5.9)	8 (16.0)
9-12	0 (0.0)	1 (25.0)	8 (34.8)	1 (5.9)	10 (20.0)
13-16	0 (0.0)	1 (25.0)	4 (17.4)	4 (23.5)	9 (18.0)
17-20	0 (0.0)	0 (0.0)	2 (8.7)	3 (17.6)	5 (10.0)
21-24	0 (0.0)	0 (0.0)	1 (4.3)	2 (11.8)	3 (6.0)
>24	0 (0.0)	0 (0.0)	0 (0.0)	5 (29.4)	5 (10.0)
Total	6 (100.0)	4 (100.0)	23 (100.0)	17 (100.0)	50 (100.0)

while only 5.9% of the latest stage disease (Stage IV) presented after 1 year of onset of their symptoms. The majority (82.4%) of those with Stage IV disease presented after 1 year of clinical symptoms.

Patients default rate in the study was 64% [Table 5]. Six (12%) patients died within the first 6 months after treatment and they all had advanced ovarian cancer (Stage I and II). Only 19 (38%) of the patients were alive after 6 months of treatment with the majority (14) of them having had optimal treatment by surgical cytoreduction and complete courses of adjuvant chemotherapy with carboplatin and paclitaxel.

Table 5: Overall stage-based outcome (6-month after treatment)

Outcome	Outcome per stage				
	Stage at presentation (%)				
	I	II	III	IV	Total
Alive	1 (20.0)	3 (60.0)	9 (37.5)	6 (37.5)	19 (38.0)
Dead	0 (0.0)	0 (0.0)	2 (8.3)	4 (25.0)	6 (12.0)
Defaulted	4 (80.0)	2 (40.0)	13 (54.2)	6 (37.5)	25 (50.0)
Total	6 (100.0)	4 (100.0)	23 (100.0)	17 (100.0)	50 (100.0)

Discussion

The small number of ovarian cancer patients managed over the 5-year period of this review is comparable to the number (37) managed in a similar review done at the Lagos State University Teaching Hospital over the same study duration[12] but higher than the 49 patients seen in a 10-year review of 1992–2001 carried out at the University of Benin Teaching Hospital[13] and 21 patients managed in the 5-year review of 1998–2002 at the University College Hospital Ibadan.[9] These figures are however generally small compared to numbers in studies carried out overseas: 152 patients in a 3-year review of 2001–2003 at Vali-e-Asr Hospital in Tehran14 and 97 patients in a 5-year review of 1999–2004 at Nepal.[15]

In this study, ovarian cancer constituted 8.2% of gynecological malignancies in LUTH and this is higher than the 2.1% in Enugu,[6] 3.4% in Botswana;[16] but comparable to the 7% in a previous LUTH study[8] and 9.8% in Ibadan.[9] This is, however, lower than the 11.9% in Benin[13] and 30.5% in Kano.[17] A wide difference is therefore noted based on the geographical location.

From this study, ovarian cancer is the second commonest gynecological cancer in LUTH and this is the conclusion of other African and Nigerian studies.[2,5-7,13,17] It is, however, the third most common gynecological cancer in some African and Asian countries.[9,15,16,18] Also noted from the study is the fact that ovarian cancer constituted 1.7% of all gynecological admissions during the study and this compares to the 1.5% recorded at Ibadan,[9] 2.8% at Ghana;[5] but lower than the 8.9% at Enugu[6] and 11.5% at Kano.[17]

The majority of the patients (60%) in the study were premenopausal and <50 years of age; this conforms to the Hong Kong study where 49.5% were <50 years,[18] and the Ibadan study where 60% were premenopausal.[9] The peak ages of incidence from this study were 40 to 49 years and 60 to 69 years, with mean age of 45.7 ± 4.3 years. A slightly different age ranges were found in Tehran: 48–52 years with mean of 50.15 years.[14] The peak ages in Ilorin was in the fifth decade of life,[7] Benin 50–60 years,[13] Maiduguri 50–59 years,[2] and Kano 57–62 years.[17] Ovarian cancer patients, therefore, have similar peak age of incidence in Nigeria and all over the world. A large proportion of the women in this study were nulliparous (34%) and this is consistent with the incessant ovulation theory;[19] however, other studies in Africa and Nigeria have reported more prevalence of ovarian cancer among multiparous women.[9] Only 4 (8%) had a family history of cancer; this is higher than the 6 (4.82%) of patients with family history, from the Ibadan study.[9]

The most common symptoms among patients from our study were an abdominal swelling (92%) abdominal pain (42%) and weight loss (24%). These are features of the advanced disease and similar presentations were seen at Benin,[13] Ibadan,[9] and Ilorin.[7] Findings from this study were similar to that of Ilorin where the majority of the patients had multiple symptoms.[7] The majority of the patients (80%) from this study presented with advanced stages and this is comparable to the studies at Ibadan (81%),[9] Benin (76.2%),[13] and Hong Kong (76.6%).[18] The most common histological type of ovarian cancer from this study was epithelial cancer which was seen in 50% of cases. This is similar to the pattern in other studies at Maiduguri (40.5%),[2] Kano (36%),[17] Benin (73.8%)[13] Ibadan (76.2%),[9] and Ilorin (43.9%).[7]

Similar to the finding from this study, several studies have also reported that the prevalence of symptoms increases with stage of ovarian cancer.[20-26] Three previous studies also observed a trend of increasing proportions of symptomatic women by stage but did not detect statistically significant differences.[27-29] However, this may be due to smaller study populations used in the studies.

The standard management of ovarian cancer is cytoreductive surgery followed by platinum-based chemotherapy[30] and this is consistent with the findings in this study, where 58% of the patients had combination therapy with surgery followed by chemotherapy. This similar to the Benin study where 91.3% had cytoreductive surgery with only 42% having adjuvant chemotherapy;[13] Ibadan study where only 23.8% had adjuvant chemotherapy.[9] Most of the patients that had surgery alone in our study, however, defaulted after surgery as they could not afford the cost of chemotherapy. This may also be as a result of the inadequate counseling of the patients before and after treatment. Twelve percent of the patients from this study died within 6 months after treatment and this is comparable to the finding from Ibadan where about 17% of the patients had died within 6 months of treatment.[9]

Limitations to the study

The poor medical record keeping system currently being used in the hospital affected the accurate data collection of patients used for the study as some data could not be retrieved. The incessant industrial actions in the health sector also contributed to the reduction in patients' presentation and the rate of defaults experienced among the treated patients during the period under review in the study.

Conclusion

The number of patients with ovarian cancer presenting to this hospital are on the increase. Failure of optimal management is worsened by the delay in presentation and high patients default rate. There is, however, a need to educate the general public on the need to present early and to ensure compliance with

their follow-up. Research works also need to be intensified in the area of management of these patients to improve the currently poor outcome.

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Conflicts of interest
There are no conflicts of interest.

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