Original Research Article

Incidence, characteristics, pattern and management of ovarian cancer in Abuja, Nigeria

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ABSTRACT

Background: The prevalence of ovarian cancer is thought to be increasing with huge burden of the disease with no comprehensive cancer center that can offer appropriate care in developing countries. However, little is known about the incidence, pattern and outcome of this disease in Abuja, Nigeria. Therefore, the aim of this study was to review the pattern of care offered to patients with ovarian cancer in our center and to evaluate patients' outcome.

Methods: This was a retrospective review of all the patients with histologically confirmed ovarian cancers 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 statistical package for social science version 23 and results were then presented in tables and chart.

Results: Ovarian cancers constituted 19.6% and 5.6% of all gynecological cancers and all gynecological admissions respectively. The mean age at presentation was 50.2±8.5 years and premenopausal 32 (55%) constituting the majority. A large proportion 43 (74.1%) of the patients were parous. The commonest symptoms at presentation were abdominal swelling (86.2%), and abdominal pain (53.4%) with the majority 38 (65.5%) presenting in an advanced stage. The commonest histological type of ovarian cancers was epithelial accounting for 30 (51.7%) of all ovarian cancers. Common treatment modality was surgery and chemotherapy and majority 32 (55.3%) of the patients had cytoreductive surgery with 19 of them having optimum cytoreduction and 33 (57%) benefitted from chemotherapy. Lost to follow-up was significantly high (55%) and mortality rate was 15.5%.

Conclusion: Cases of ovarian cancers are on the increase. Women presented at an advanced stage of the disease, which resulted in short survival times. Failure of optimal management was also worsened by poor compliance to treatment with high patients' default rate.

Keywords: Abuja, Cancer, Histological, Outcome, Ovarian, Pattern

INTRODUCTION

Ovarian malignancy is the second most common gynecological cancer in developing countries.[1] Of all the gynecological cancers ovarian cancers account for 18.8% and 28.7% in developing countries and in developed countries respectively.[1,2] The incidence of ovarian cancer is 6.1/100,000 population globally. In India, the World Health Organization (WHO) reports that the crude incidence rate of this cancer is 4.9/100,000 women, 5% of all malignancies.[3] In Lagos, Nigeria it constituted 7% of gynecological malignancies and was the second most common cause of death among women admitted on the gynecological ward of the hospital during the study.[4]

Although ovarian cancers is primarily a disease of postmenopausal women, the highest number of cases being epithelial, it affect all age groups.[3] Perimenopausal

women are also at higher risk of developing ovarian malignancies as postmenopausal women.[5] Studies indicate that most cases are seen in the sixth decade with a mean age of 59.5 years.

Etiology of ovarian cancer is unknown but associated risk factors include family history, increasing age, decreasing fertility rate and increasing use of ovulation induction drugs, 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.[3,4] Other associated etiological risk factors include increasing age, postmenopausal status, estrogen replacement therapy, race, environmental factors, dysgenetic gonads, while 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.[4,6]

Non-specific early warning symptoms, lack of knowledge of a premalignant stage, the absence of a reliable screening tool, and inaccessibility of the ovary to screening further complicate the problem. Global observation of late presentation for ovarian cancer is seen in Nigeria as more than 75% of cases present in advanced stages.[1,6-9] The challenges in management is due to lack of organized cancer care and partly as a result of to its late presentation and these worsen the prognosis, making it the highest case fatality rate among gynecological cancers worldwide.[4,6-8] The asymptomatic presentation, secret growth of the malignancy and delayed onset of the cancer is the cause of its high mortality.[10] Thus, the name "silent killer" that had been given to this cancer and high-grade serous carcinoma account for two-thirds of ovarian cancer mortality.[10]

Surgical exploration for primary staging for cytoreduction or debulking remains the standard care for ovarian cancer and this should be performed by a gynecologic oncologist at the time of initial laparotomy.[11] One of the most powerful prognostic factors is the residual disease volume at the completion of surgery.[11]

Three to six cycles of intravenous taxane/platinum-based adjuvant chemotherapy for high-risk stage ovarian cancer was recommended by the National Comprehensive Cancer Network.[11]

Although, the chance of survival from ovarian cancer depends on tumor biology (cancer stage, grade, and histology), majority of patients relapse following treatment-induced regression as a result of non-available effective treatments arising from late presentation.[10] Nonetheless, there is remarkable geographic variation in the incidence of ovarian cancer and mortality with the general belief that ovarian cancer is more common in developed countries especially in North and West Europe and the Unites States of America (USA) than in Asia and Africa.[4,12] Black-Americans are reported to have a lower

incidence of ovarian cancer but have a poorer prognosis compared to their white counterparts.[4]

This study is therefore aimed to determine the prevalence clinical presentation and outcome after management of patients with ovarian cancer seen in a tertiary institution in Abuja, Nigeria over a 5-year period from January 2015 to December 2019.

METHODS

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 Pathology. The case notes of all these patients were retrieved from the medical records department of the hospital. The total numbers of gynecological malignancies seen in the hospital as well as the total number of gynecological admissions during the study were also extracted from the gynecological wards register. Information on age, parity, treatment options, clinical presentation, stage at presentation, histopathological types, and outcomes were extracted from the case files of the patients with histologically confirmed ovarian cancer.

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

Statistical analysis

The data obtained were analyzed using Statistical package for social sciences (SPSS) statistical software, version 23. Absolute numbers and simple percentages were used to describe categorical variables. Similarly, quantitative variables were described using measures of central tendency (mean, median) and measures of dispersion (range, standard deviation) as appropriate.

RESULTS

During the 5-year period under study (2015-2019), there were a total of 1030 gynecological admissions and 296 cases of gynecological malignancies during the study. Seventy-nine patients with suspected ovarian malignancy were admitted during the study whereas the case notes of 65 of these patients were successfully retrieved from the medical records department of the hospital and 7 patients had incomplete records and they were excluded.

Therefore, 58 patients had histological diagnosis of primary ovarian malignancy over the study period with the remaining 14 having benign ovarian pathologies. These 58 cases constituted 5.6% of the gynecological admissions and 19.6% of the gynecological malignancies managed in the hospital accounting for the second most common gynecological malignancy after cervical cancer during the

study period. The age range of these women was 15-80 years with mean age of 50.2±8.5 years.

Table 1: Sociodemographic characteristics.

	Frequency (N=58)	Percentage
Age group (years)	50.2±8.5*	
10-19	5	8.6
20-29	1	1.7
30-39	7	20.7
40-49	12	20.7
50-59	16	27.6
60-69	11	19.0
70-79	5	8.6
≥80	1	1.7
Parity		
Para0	15	25.9
Para 1-4	17	29.3
Para ≥5	26	44.8
Occupation		
Farming	3	5.2
Civil servant	6	10.3
Trading	20	34.5
Teaching	2	3.4
Student	5	8.6
Unemployed	22	37.9

*Mean±SD.

Table 1 shows that the largest proportions of patients were seen amongst the age groups 40-49 years (27.6%) and 50-59 years 12 (20/7%). The peak ages of occurrence in this study were 40-49 (20.7%) and 50-59 (27.6%) with the mean age of 50.2±8.5 years. A large proportion 43 (74.1%) of the patients was shown to be parous and nulliparous accounting for 15 (25.9%) with an overall mean parity of 3.4±1.7. Majority of the patients were either traders (34.5%) or unemployed (37.9%).

Table 2: Symptoms, signs and sage at presentation.

Variables	Frequency	Percentage
Symptoms		
Abdominal swelling	50	86.2
Abdominal pain	31	53.4
Weight loss	6	10.3
Vaginal bleeding	8	13.8
Pleural effusion	1	1.7
Stages		
Stage 1	7	12.1
Stage 2	13	22.4
Stage 3	24	41.4
Stage 4	14	24.1

Table 2 shows the commonest symptoms at presentation were abdominal swelling (86.2%), and abdominal pain (53.4%). Abdominal distension and abdominal mass were the commonest clinical sings occurring in majority of the

patients, though most of them presented with 2 or more clinical features.

Table 3: The histopathological types.

Histopathological type	Frequency (N=58)	Percentage
Epithelial	**n=33**	
Serous	11	33.3
Mucinous	9	27.3
Squamous cell Carcinoma	4	12.1
Endometroid	6	18.2
Poorly undifferentiated	1	3.0
Ovarian adenocarcinoma	1	3.0
Papillary cystadenocarcinoma	1	3.0
Sex cord tumour	**n=14**	
Granulosa cell	5	35.7
Sertoli-leydig cell	3	21.4
Fibroma	4	28.6
Serous cystadenocarcinoma	2	14.3
Germ cell tumour	**n=6**	
Immature Teratoma	1	16.7
Dysgerminoma	1	16.7
Borderline brenner's tumor	1	16.7
Yolk sac tumor	2	33.2
Gonadoblastoma	1	16.7

Table 3 shows epithelial (60.6%) (serous cell and mucinous) tumours were the most common histological variants of the tumour, accounting for 33.3% and 27.3% of cases, respectively. All the patients aged 10-19 years had germ cells ovarian cancer comprising of two cases of yolk sac tumour, one dysgerminoma, one immature teratoma and 1 case of gonadoblastoma as shown in Table 3.

Table 4: The extent of surgery performed on the patients/, and treatment modalities.

Type of surgery	Frequency (N=58)	Percentage
Unilateral oophorectomy	4	6.9
Bilateral oophorectomy	13	22.4
Cytoreduction surgery	32	55.2
Inoperable tumor	9	15.5

Table 4 shows about (22.4%) of the patients had bilateral oophorectomy due to difficulties in doing more extensive surgeries. Majority (32) 55.3% of the patients had cytoreductive surgery with 19 of them having optimum cytoreduction which are standard for ovarian cancers. Unilateral oophorectomy (6.9%) were done for younger patients with desire for future fertility and presented with

early stage cancers and 15.5% of the cases were inoperable tumours but biopsies were taken for histology.

The majority of the patients (65.5%) presented at advanced stages with stage III and IV, constituting 41.4% and 24.1%, respectively. A large proportion 43 (74.1%) of the patients was shown to be parous with overall mean parity of 3.4±1.7 with premenopausal 32 (55%) constituting the majority and 15 (25.9) being nulliparous (Table 1).

The commonest symptoms at presentation were abdominal swelling (86.2%), and abdominal pain (53.4%) with the majority of the patients (65.5%) presented at advanced stages of the disease, stage III and IV, constituting 41.4% and 24.1%, respectively (Table 2).

The commonest histological type of ovarian cancers was epithelial accounting for 30 (56.97%) of all ovarian cancers. All the patients aged 10-19 years had germ cells ovarian cancer comprising of two cases of yolk sac tumor, one dysgerminoma, one immature teratoma and 1 case of gonadoblastoma as shown in Table 3.

Many patients 13 (22.4%) had bilateral ooporectomy as the only surgery due to difficulties in doing more extensive surgeries and majority (55.2%) of the patients had cytoreductive surgery. Unilateral oophorectomy (6.9%) were done for younger patients with the desire for future fertility and presented with an early stage cancer and 15.5% of the cases were inoperable tumors (Table 4). Majority (55%) of patients were postmenopausal, 43% were premenopausal and only 2% were premenarchial.

Approximately 33 (57%) of the patients benefitted from chemotherapy (Figure 2). Lost to follow-up was significantly high involving (55%) of the patients and relatively high mortality rate of 15.5% was recorded (Figure 3).
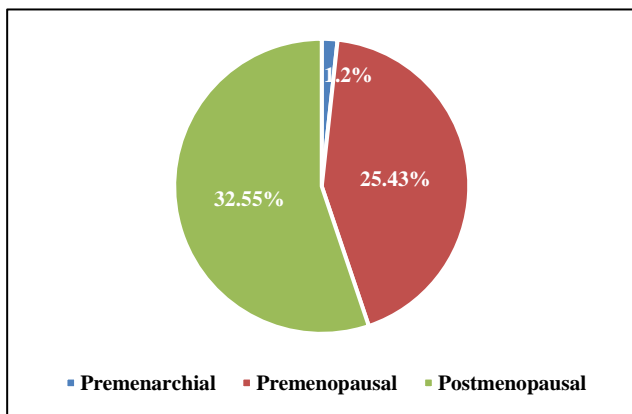

Figure 1: Menarchial and menopausal status of the patients.

Figure 1 shows that majority (55%) of patients were postmenopausal, 43% were premenopausal and only 2% were premenarchial.

Figure 2 shows that 57% of the patients had adjuvant chemotherapy; and 43% of them defaulted for one reason or the other.
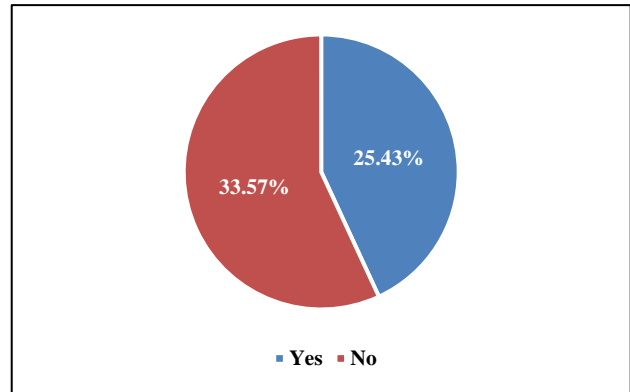

Figure 2: Adjuvant chemotherapy with carboplatin and paclitaxel.
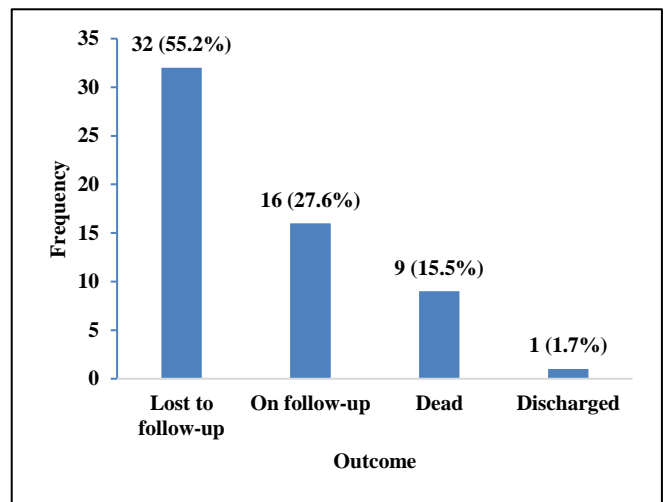

Figure 3: Treatment outcome of patients.

Figure 3 lost to follow-up rate in the study was 32 (55.2%) (Figure 3), 9 (15.5%) patients with advanced cases died within the first 6 months after treatment.

DISCUSSION

Ovarian malignancies are the most lethal of gynecological cancers and remains an important public health issue.[6] In this study, ovarian cancer constituted 19.6% of all gynecological cancers and 5.6% gynecological admissions in our center. This finding is higher than 8.2% incidence of ovarian malignancies reported in Lagos by Okunade et al but lower than 25% of the incidence rate amongst all gynecological cancers in a similar study done in Enugu by Iyoke et al.[4,13] However, study done in Ibadan, Nigeria revealed that it represents 16.3% genital tract cancer which is comparable to this study.[14] The epidemiological diversity of ovarian cancer in different regions similar to other cancers and varies across the world due different risk factors.[10]

The age range of the patients were 15 to 80 years and peak age of occurrence from this study was 50-59 (27.6%) with mean age of all histological subtypes of 50.2±8.5 years. This mean age is slightly higher than the mean age of the patients for all histological subtypes of 45.4±17.1 years in a study recorded in Enugu, Nigeria and 45.7±4.3 years in another study conducted in Lagos.[4,14] It however, correlates with the mean age of 50.15 years, median age of 50±16 years and mean age of 49.9 years that were reported in India, Tehran and Sudan respectively.[5,16,17] This implies that ovarian cancer has comparable mean age of occurrence globally. Thus, advancing age appears to be the most significant risk factor for the development of ovarian cancer. The premenopausal 32 (55%) constituted the majority in this study and this conformed to the findings elsewhere where 60% of the patients were premeopausal.[14] It is also similar to the findings reported in Ibadan, Nigeria and Hong Kong where perimenopausal constituted 60 and 49.5% of the patients with ovarian cancer respectively.[8,18]

Predominant proportion 43 (74.1%) of the patients were parous and nulliparous accounting for 15 (25.9%) with an overall mean parity of 3.4±1.7 despite the copious documented reports from the literature that nulliparity is a risk factor for ovarian cancer. Perhaps, this finding may be due to small sample size available for this study. The overall mean parity noted in this study is, however, higher than an overall mean parity of 1.29±0.13 documented in another study.[4]

All the cancers in pre-menarchial girls (2%) were germ cell tumors and these findings give credence to the statement that germ cell tumors were more prevalent before 20.[16] This is similar to the findings documented an earlier study.[12] In contrast, mucinous cyst adenocarcinoma has been reported by some authors in an 11-year-old girl, inferring that no age is immune to any type of the disease.

The commonest symptoms at presentation were abdominal swelling (86.2%), and abdominal pain (53.4%) and with the majority 38 (65.5%) presenting in an advanced stage.

These findings are similar to what were documented in previous studies.[4,5] These symptoms are consistent with obvious features of advanced disease. Majority of the patients 38 (65.5%) presenting in an advanced stage at presentation is consistent with findings documented in Ibadan.[8] Ilorin, Benin, all in Nigeria and in India.[20-22] The majority of the patients (65.5%) presented at advanced stages with stage III and IV, constituting 41.4% and 24.1% respectively. This differ slightly with the universal observation that more than 75% of the women with ovarian cancer presented in an advanced stage of the disease.[6] It also differ with the findings documented in Lagos where that the majority of the patients (80%) presented at advanced stages with stage III and IV, constituting 48% and 32% respectively.[4]

Apart from the 'silent' nature of the disease and its non-specific symptoms that hinder early diagnosis, reasons for late presentation could be adduced to lack of cancer awareness and education, the influence of local healers, witchcraft, poverty and so forth. This finding is in conformity with Sudan study.[12]

The epithelial ovarian cancers comprised mainly serous cell (33.3%) and mucinous (27.3%) were the commonest histological sub types. Thus, all accounted for 33 (56.9%) of all ovarian cancers. This correlates with 60% of epithelial variants documented as the commonest histological type of ovarian cancer in Lagos, India and Enugu respectively.[4,5,13] It is worthy of note that majority of the epithelial ovarian cancers occurred at 50 years and below and this conformed with another study and remained the most fatal gynecologic malignancy in this study.[15]

The mainstay in the management of ovarian cancer is cytoreductive surgery followed by platinum-based chemotherapy.[4,23] There are studies that showed an association between the type of surgeon and surgical outcome, both in terms of achieving optimal cytoreduction rates and survival rate.[24] This is attributed to the fact that gynecological oncologists achieve higher optimal cytoreductive rates than other surgeons.[24] Unfortunately, there was no trained gynecological oncologist in our center during the study period, however, multidisciplinary approach involving gynecologists, general surgeons, and at times urologists were employed. General surgeons participated in most surgeries where severe abdominal adhesions were noted or where bowel resections were necessary. Thirteen (22.4%) of the patients had bilateral oophorectomy as the only form of surgery due to difficulties in doing more extensive surgeries. Otherwise, it is recommended that complete resection of all macroscopic disease when performing surgery for women with ovarian cancer, whether as an upfront or an interval procedure.[25] This has been corroborated by many studies that had shown association between survival and the amount of postoperative residual disease, though, they were all retrospective studies.[25,26]

Majority (32) 55.2% of the patients had cytoreductive surgery which are standard for ovarian cancers. Unilateral oophorectomy (6.9%) were done for younger patients that presented with early stage cancers and 15.5% of the cases were inoperable tumors because of fear of perceived unacceptable possible morbidities. Some of these patients with advanced disease, metastatic disease and unsuitable for an operation, however, received neoadjuvant chemotherapy and at least biopsy taken for histology. Out of the 32, (55.2%) of the patients that had cytoreductive, 19 of them benefited from optimal debulking surgery. This finding is consistent with a similar study where 58% of the patients had combination therapy with surgery followed by chemotherapy.[4] It, however, differed from the similar study conducted in Benin, Nigeria where up to 91.3% had cytoreductive surgery with only 42% having adjuvant chemotherapy.[20] It is also in contrast to study conducted in Ibadan where only 23.8% had adjuvant chemotherapy.[4]

Surgery alone can be curative if cancer is confined to the ovaries, but this is not the case for the majority of women with ovarian cancer because of late presentations as seen in this study.[25] However, unilateral oophorectomy (uterine-sparing procedures and conservation of non-diseased contralateral ovaries) were carried out as the only treatment for the young women with desire for future fertility who presented in an early stage of the disease in this study. The beneficial effects of cytoreductive surgery in advanced disease are only seen in conjunction with active chemotherapy and the independent contribution of surgery in this context remains to be established.[25]

With regards to chemotherapy many of the patients (43%) did not receive chemotherapy following surgery in our study with some abandoning further chemotherapy after receiving one or two courses only while others defaulted completely after surgery because of their inability to afford the cost of procuring chemotherapy. Indeed, compliance with platinum-based adjuvant chemotherapy was poor in this study. This may also be as a result of the insufficient counseling of the patients before and after treatment. This finding is similar to what was documented in other studies.[4,13]

Lost to follow-up rate in the study was 32 (55.2%) and (15.5%) patients with advanced cases died within the first 6 months after treatment. Lost to follow-up is comparable to 40% default rate recorded in Sudan study and default rate of 64% documented in another study.[4,12]

Failure of optimal management is worsened by late presentation and poor compliance to chemotherapy and approximately 16% of the patients from this study succumbed to the disease and this is consistent with the finding from Ibadan where about 17% died within 6 months after treatment a and comparable to 12% fatality reported in Lagos.[4,19] It is, however, lower than the finding in Enugu Nigeria where case specific mortality rate within 1 year of diagnosis was, as high as 70%.[26]

Consistent with previous studies, age had a great impact on overall survival in ovarian cancers as majority of the survivors in this study were women under age 50.[27-29] This poor prognosis of ovarian cancer recorded in this study was not surprising since most patients presented with advanced stage disease and many did not receive neoadjuvant chemotherapy for the reasons aforementioned. Additionally, occurrence of chemotherapy resistance could have contributed.

CONCLUSION

Majority of ovarian cancer cases were seen amongst the premenopausal and parous women with the commonest symptoms at presentation being abdominal swelling and abdominal pain and epithelial cancer being the most common histological type. Cytoreduction and adjuvant chemotherapy was the standard treatment offered, however, the delay in presentation and high patients

default rate resulted in poor prognosis. There is, thus, the need to enlighten the populace on the importance of early presentation and good compliance with their follow-up. In addition to, funding of cancer care by government so as to reduce the financial burden of cancer treatments on the patients will be paramount.

ACKNOWLEDGEMENTS

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