ORIGINAL RESEARCH ARTICLE

Ovarian Cancer in Ghana, a 10 Year Histopathological Review of Cases at Korle Bu Teaching Hospital

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Abstract

To determine the histopathological types, age distribution, presenting signs and symptoms of ovarian cancers diagnosed at the Korle-Bu Teaching Hospital, Ghana. All histopathology slides and request cards of ovarian cancers diagnosed over a ten-year period (2001 to 2010) were reviewed and the cancers classified according to the World Health Organization 1999 classification. Biographical and clinical data of the patients were collected and results entered into Epi-info to determine the frequency, age distribution and clinical presentation of the various types of ovarian cancer. There were 192(27.2%) ovarian cancers out of 706 ovarian tumours. Epithelial cancers were the most common: 100 (52.1%), followed by sex cord stromal cancers 66 (34.4%). Majority of epithelial cancers were serous adenocarcinomas (71/100) while most sex cord stromal cancers were adult granulosa cell tumours 46 (69.7%). The mean age of patients with adenocarcinoma was 49 years while that of the 46 adult granulosa cell tumours was 46.5years. Patients present with varying combinations of symptoms and signs and ovarian cancers present at an earlier age compared to other populations, with the age of presentation being slightly lower for sex cord stromal cancers compared to adenocarcinomas. There are no specific symptoms or signs associated with ovarian cancer at presentation, to assist with diagnosis. *(Afr J Reprod Health 2015; 19[4]: 102-106).*

Keywords: Ovary, Cancer, Histopathology, Demographics, Clinical features, Ghana

Résumé

Afin de déterminer les types, la distribution d'âge, les signes et les symptômes de la présentation histopathologiques de cancers de l'ovaire qui ont été diagnostiqués au Centre Hospitalier Universitaire de Korle-Bu, au Ghana, toutes les diapositifs d'histopathologiques et les cartes de demande de cancers de l'ovaire diagnostiqués au cours d'une période de dix ans (2001 à 2010) ont été examinés et les cancers classés selon la classification de l'Organisation mondiale de la Santé de1999. Les données biographiques et cliniques des patientes ont été recueillies et les résultats enregistrés dans Epi-info pour déterminer la fréquence, la distribution de l'âge et de la présentation clinique des différents types de cancer de l'ovaire. Il y avait 192 (27,2%) cancers de l'ovaire sur 706 tumeurs ovariennes. Les cancers épithéliaux étaient les plus courantes: 100 (52,1%), suivi par les cancers du stroma des cordons sexuels 66 (34,4%). La majorité des cancers épithéliaux étaient adénocarcinomes séreuses (71/100), tandis que la plupart des cancers du stroma des cordons sexuels étaient les tumeurs des cellules granuleuses adultes 46 (69,7%). L'âge moyen des patientes présentant un adénocarcinome était de 49 ans alors que celle des tumeurs à cellules granuleuses chez les 46 adultes était 46,5 années. Les patientes qui ont des combinaisons différentes de symptômes et les signes et les cancers ovariens présentent à un âge plus précoce par rapport à d'autres populations, l'âge de la présentation étant légèrement inférieure pour les cancers de la moelle stromales de sexe par rapport à des adénocarcinomes. Il n'y a pas de symptômes spécifiques ou des signes associés au cancer de l'ovaire à la présentation, pour pouvoir aider au diagnostic. *(Afr J Reprod Health 2015; 19[4]: 102-106).*

Mots-clés: ovaire, cancer, histopathologie, démographie, caractéristiques cliniques, Ghana

Introduction

Ovarian cancer ranked fifth as cause of death from malignant tumours in women older than 14 years in a ten year review of autopsy and hospital mortality data at the Korle Bu Teaching Hospital Accra-Ghana[1]. They accounted for 6% of deaths from malignant tumours within the ten year period (1991-2000). In that series most of the mortalities occurred in women older than 34years[1]. In another study in the same institution, ovarian cancer ranked second to cervical cancer as a cause of

cancer death in women (excluding breast cancer). In that study, the mean age of occurrence was 46.4 years and most of these patients presented with late stage disease[2]. In a retrospective study in Ilorin, Nigeria ovarian cancer was the second most common gynecological cancer, with a peak incidence in the 5th decade of life[3], similar to findings in the studies in Ghana. The median age for ovarian adenocarcinoma is quoted as 60-65 years in studies from Europe and the USA[5,6], much higher than the 45 years reported in a study of 44 patients referred to the department of radiation oncology of the Korle-Bu teaching Hospital, Ghana for ovarian cancer treatment. However the sample size was too small and the findings may not be representative of the true pattern in the country[7]. The objective of this study was to determine the histopathological types of ovarian cancers, their age distribution and the presenting signs and symptoms of the patients diagnosed at the Korle-Bu Teaching Hospital.

Materials and Methods

A retrospective, descriptive cross sectional study was carried out, involving the collection of biographic data available on request forms and histopathological reports of all ovarian tumours seen in the department of pathology of the Korle-Bu Teaching Hospital (KBTH) between January 2001 and December 2010. Data collected included; age, symptoms, signs and the duration of symptoms. All histopathology slides and paraffin blocks of these cases were retrieved for review. Haematoxylin and eosin (H&E) stained sections were reviewed. In some cases histopathological diagnoses were confirmed using special stains such as: periodic acid-Schiff (PAS), with and without diastase pre-digestion, trichrome and reticulin stains. Where H&E-stained slides were found to be of poor quality, or where paraffin blocks were available but slides were missing, fresh sections were prepared for review. All cases reported in the pathology files but for which slides and blocks were missing were excluded from the study.

Data were captured using the Epi Info™ Version 3.5.1 software. The Analysis module was used to read and analyse data entered. Indices such as frequency, median and mean were derived for the various types of ovarian cancer. Ethical clearance was obtained from the Research and Ethical Committee of the University of Ghana Medical School.

Results

A total of 706 ovarian tumours were reviewed out of which 192 (27.2%) were malignant, comprising of 100(52.1%) epithelial cancers, 66 (34.2%) sex cord stromal cancers, 18(9.4%) germ cell cancers and 8(4.2%) Burkitt's lymphomas, the details are shown in Table 1. Majority (71) of the 100 epithelial cancers, were serous adenocarcinomas with 62(87.3%) of the patients being older than 35 years. The mean age for serous carcinoma was 50.1years (SD 10.0), similar to that of endometroid carcinoma and the median age was 50.0 years. The mean age of occurrence of mucinous carcinoma was 47.3 years (SD 7.1) and the median age was 45 years.

The mean age of occurrence of sex cord-stromal tumours was 40.2years (SD 17.9) with a median age of 42 years. The mean age of occurrence of the 46 adult granulosa cell tumours (the largest category of this tumour group) was 46.5years (SD15.9) with a median age of 46.5 years Table 1.

No symptoms were recorded for 35.4% of the patients and there were no signs recorded for 55.5%. However, for those with information on symptoms many (39.5%) complained of abdominal mass. For those that had signs stated 43.5% had a non-tender lower abdominal mass and 35.3% had ascites Table2.

In respect of size, although the numbers are not comparable, on average, the mucinous carcinomas were larger with a test of significance of; χ^2 (1, n=80) =0.845, $p<0.05$. The details are shown in Table 3.

Discussion

In our study, the commonest malignant tumours were malignant surface epithelial tumours (52.1%). This figure is not too different from the 60.9% reported in a study in India in which 957 ovarian neoplasms were evaluated[10]. The mean age of patients with ovarian epithelial cancer in the present study was 49 years with a median age of 50years, higher than the median age of 45years quoted in an earlier smaller study in our institution[7]. Similarly in a study conducted at the

Table 1: Age Distribution of Patients with Different TYPES of ovarian Cancer

Age groups (years) Type of cancer	5-14	15-24	25-34	35-44	45-54	55-64	> 64	TOTAL
EPITHELIAL CANCERS (100)								
Serous	0	1	4	18	24	20	4	**71**
Mucinous	0	0	0	4	3	2	0	**9**
Endometroid	0	0	0	3	3	3	0	**9**
Undifferentiated	0	1	0	2	5	0	1	**9**
Brenner	0	0	0	1	0	0	0	**1**
Clear cell	0	0	0	1	0	0	0	**1**
GERM CELL CANCERS (18)								
Dysgerminoma	1	6	1	0	0	0	0	**8**
Yolk sac tumours	0	4	0	1	0	0	0	**5**
Immature T*	2	0	1	0	0	1	0	**4**
Choriocarcinoma	0	0	0	0	0	0	1	**1**
SEX CORD STROMAL CANCERS (66)								
Adult GCT**	0	4	10	3	15	6	8	**46**
SLCT - ID***	0	6	0	2	2	0	0	**10**
Juvenile GCT	4	1	3	0	0	0	0	**8**
Unclassified	0	1	0	0	0	0	1	**2**
OTHER MALIGNANT TUMOURS (6)								
BURKITT LYMPHOMA	6	2	0	0	0	0	0	**8**
TOTAL	**13**	**24**	**19**	**35**	**52**	**32**	**15**	**192**

** Granulosa cell tumour
***Sertoli leydig cell tumour- Intermediate differentiation

Table 2: Presenting Symptoms and Signs of Patients with Ovarian Cancer

SYMPTOMS	Frequency	Percent
NOT STATED	68	35.4
ABD DISTENSION	42	21.9
ABDOMINAL MASS	49	25.5
CHRONIC LAP*	10	5.2
MENSTRUAL D**	10	5.2
NON SPECIFIC	11	5.7
ACUTE ABDOMEN	2	1.0
Total	**192**	**100**
SIGNS		
ASCITES	**30**	**15.6**
INCIDENTAL	**6**	**3.1**
NON TENDER LAM***	**37**	**19.3**
NOT STATED	**107**	**55.7**
T LAM****	**12**	**6.3**
Total	**192**	**100**

*Lower Abdominal Pain
**Disorders
***Lower Abdominal Mass
****Tender Lower Abdominal Mass

Table 3: Size of Malignant Surface Epithelial Tumours

Type of tumour	0-10cm	11-20cm	21-30cm	>31cm
Serous	35	33	3	0
Mucinous	3	5	1	0
Endometroid	5	3	1	0
Undifferentiated	3	6	0	0
Brenner	0	0	1	0
Clear cell	1	0	0	0
TOTAL	**47**	**47**	**6**	**0**

University of Nigeria Teaching Hospital, ovarian cancers were reported in women aged 50years and lower, a finding that may be similar to what pertains in Ghana[8]. In this study most (94%) of the epithelial cancers occurred in women older than 35 years. The largest proportion (34.3%) was in the 45-54years age group, followed by the 35-44 years age group with 27.5% and the 55-64 years age group with 24.3%. This distribution agrees with findings in the Indian study where ovarian cancers were found predominantly in the broader 41-60 years age group[10]. In that study, a significant number of cancers were also found in the 30-40 years age group[10]. The age range for ovarian epithelial cancer is 60-65 years among Caucasians in studies from the USA[5,6,10]. Thus, our findings confirm a higher incidence of ovarian epithelial cancers in relatively younger women in Ghana. Additionally, in this study, the mean age for serous adenocarcinoma of 50 years is higher than that for mucinous adenocarcinoma for which the mean age is 47years.

Endometroid ovarian adenocarcinoma comprises 10-25% of all primary ovarian carcinomas in the literature[10]. In this study however, it formed only 4.5% of all primary carcinomas of the ovary, a finding similar to

studies in Eastern and Western India (4.2% and 5% respectively)[10]. These findings support the observation that there is geographical variation in the types of ovarian tumours.

Regarding the size of adenocarcinomas, majority (88.9%) of the mucinous cancers were less than 20cm in largest dimension, a pattern similar to that of the serous carcinomas. However unlike the serous carcinomas, a slightly larger proportion of the mucinous carcinomas (55.6%) were in the range 11-20 cm (48% in the case of the serous carcinomas). This may support the finding in other studies that suggest that mucinous carcinomas tend to be larger, on average, than serous carcinomas[9].

Sex-cord stromal cancers form a more significant proportion (34.4%) of malignant ovarian tumours in this study, as opposed to other studies in the USA where they formed only about 7% of all malignant ovarian tumours[9]. More than half (69.7%) of these were granulosa cell tumours, which constituted the majority of sex cord-stromal cancers, similar to findings in other studies (70%, and representing 3-5% of malignant ovarian tumours)[11]. In this study however the granulosa cell tumours comprised 24% of all malignant ovarian tumours, a considerably higher proportion than that in the previously mentioned study[11], again lending some credence to geographical variations in the types of ovarian tumour.

Dysgerminomas accounted for 44.4% of malignant germ cell tumours in this study, as opposed to 56% and 36.2 % in studies in the United States of America and Eastern India respectively[10]. Overall, it formed 1.1% of all ovarian tumours, a figure that agrees with the 1-2% found in other studies in the United States of America[9,10]. Thus, together with findings in studies from the United States of America and India, dysgerminoma is confirmed as the commonest malignant germ cell tumour[9].

The wide range of symptoms and signs shown in this study suggest that symptoms and signs associated with ovarian tumours, either in early or late stages, are too varied to assist in early diagnosis of the disease. Thus, persistent abdominal clinical symptoms and signs in women should always be further investigated with ovarian tumour in mind[10,11].

Conclusion

Ovarian cancers in the Ghanaian subjects studied, present at an earlier age (mean 49years), with the age of presentation being slightly lower for mucinous carcinoma (47 years) as compared to serous carcinomas (50years). Serous carcinoma is the commonest ovarian cancer in this study. There are no specific symptoms associated with ovarian cancer, either in early or late stages, to assist with diagnosis.

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Declaration

The research idea was conceived by Patrick K Akakpo and Jehoram T. Anim, the EPI info data collection interface was designed by Patrick K. Akakpo, data collection and analysis were done by Leonard Derkyi-Kwarteng and Solomon E Quayson, the manuscript was prepared and reviewed by Patrick K Akakpo, Richard K Gyasi, Solomon E Quayson, Leaonard Derkyi-Kwarteng and Jehoram T. Anim. All authors approved the manuscript.

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