(RESEARCH ARTICLE)

Ovarian cancer in southeastern of Yemen

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Abstract

Introduction: Ovarian cancer is an important cause of mortality in women. The incidence of ovarian cancer and survival rates are still relatively unknown in southeast Yemen. This study takes into account trends in ovarian cancer incidence and survival rates by examining age, histological subtypes, residency, and treatment.

Methods: The National Cancer Center Aden is the premier cancer care transformation center in the southeastern governorates and the source for collecting data on ovarian cancer mortality from 2014-2020 from the Surveillance, Epidemiology and End Results Database. The age-adjusted incidence rate, the percentage incidence rate, the annual percentage changes (APC) by histopathology and age at diagnosis were calculated. The 5-year survival rates were calculated by stage and treatment.

Results: Mean age at presentation: 48.14 years (SD 15, range 20-79 years); commonest histological sub-type: presentation of OVC types was the Serous cystadenocarcinoma 56(34%); The most frequently seen stage: 4 (53%) of all ovarian cancers), followed by stage 3 (28%). The mortality rate for women with ovarian cancer is slightly higher in the years studied. Mortality was higher during period of the war.

Conclusions: Due to the lack of adequate information on the epidemiological records of ovarian cancer in Yemen, there is an urgent need to carry out a large population study in southeastern Yemen in order to improve the programs of prevention and control of ovarian cancer in the region by the support of Ministry of Health and the World Health Organization.

Keyword: Ovarian Cancer; Chemotherapy; Histopathology; Mortality

1. Introduction

Cancer is a leading cause of morbidity and mortality worldwide, and the cancer burden is increasing worldwide. Ovarian cancer is one of the leading causes of death from cancers of the female reproductive system around the world [1]. Ovarian cancer is the eighth most common cancer in women worldwide. In addition, it is the seventh leading cause of cancer-related death, with serious implications for social, economic and societal health on a global basis [2-4]. Cancer data reported by National oncology center in Aden, show that ovary cancer was the most common cancer accounting for 54.4% of gynecological malignancies followed by cervix cancer 18.8% [5]. In developing countries it is the second most common gynecological cancer and the fourth most common cancer in women with 17,755 registered cases in 2012. The lack of a national strategy to screen for the early-stage disease is a major reason for the high mortality rate from ovarian cancer in countries with limited resources [6].

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Ovarian cancer is considered a "silent killer" because its symptoms appear late, when the cancer has spread and is difficult to treat. Ovarian cancer is the fifth leading cause of cancer-related death in women in the United States and the leading cause of death from gynecological cancers. Although one-tenth as common as breast cancer, it's three times more deadly and has a 1:70 risk. In 2017, approximately 20,180 women will be diagnosed with ovarian cancer and 15,310 will die from the disease [7].

The familial incidence of ovarian cancer is around 10% [8] and ovarian cancer is one of the most common cancers in developed countries. Ovarian cancer is a common tumor even in developed countries and ranks seventh among the most common cancers in terms of incidence [9].

2.   Methods

The National Cancer Center Aden is the premier cancer care transformation center in the southeastern governorates and the source for collecting data on ovarian cancer mortality from 2014-2020 from the Surveillance, Epidemiology and End Results Database. A total of 165 ovarian cancer patients age range (17 to 79) years old in their different stage of the disease attending National oncology center in Aden from different gynecological clinics were included in this review study.Theage-adjusted incidence rate, the percentage incidence rate, the annual percentage changes (APC) by histopathology and age at diagnosis were calculated. The survival of each patient (in person-months) was defined as the period from the date of diagnosis to the date of death related to ovarian cancer. Statistical analysis, Raw data were entered into a spread sheet of SPSS statistical package program, version 13. The data were rearranged as appropriate.

3.   Results

A total of 165 cases of the ovarian cancers were registered during the period from 2014-2020. The mean age at presentation of the 165 patients was 48.14 years (SD 15, range 20-79 years (table 1). All malignant tumors were further analyzed according to histology. The three most common histopathological presentation of OVC types were the Serous cystadenocarcinoma 56(34%) Mucinous cystadenocarcinoma 40 (24.3%), Endometroid carcinoma 30 (18.2%) and Germ cell OVC 16 (9.6%) as shown in table 2. Most patients presented with an advanced disease. Around 53% of all ovarian cancers are diagnosed at stage 4, 28% at stage 3, 13% at stage 2, and only 6% at stage1, as depicted in table 3.

Table 1 Age group distribution of patients with ovary cancer (Jan2014-Dec2020)

Age	2014	2015	2016	2017	2018	2019	2020	Total	%
20-29	0	0	1	1	1	4	3	10	6.1
30-39	3	1	7	0	2	2	3	18	10.9
40-49	9	5	7	1	7	3	8	40	24.2
50-59	8	4	8	4	8	4	5	41	24.9
60-69	10	4	3	3	7	5	8	40	24.2
70-79	1	3	7	2	2	0	1	16	9.7
Total	31	17	33	11	27	18	28	165	100

Table 2 Histopathology of ovarian tumors

Histopathology type	No. of cases	Percentage
Serous cystadenocarcinoma	56	34
Mucinous cystadenocarcinoma	40	24.3
Endometroid carcinoma	30	18.2
Germ cell tumors	16	9.6
Malignant teratoma	8	4.8
Miscellaneous	15	9.1
Total	165	100

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Table 3 Stage of ovarian cancer+ treatment and out come

Stage	I	II	III	IV	Total	%
2014	0		14	17	31	18.8
2015	0	0	6	11	17	10.3
2016	5	5	4	19	33	20
2017	0	0	1	10	11	6.7
2018	2	2	6	17	27	16.4
2019	1	5	7	5	18	10.9
2020	2	9	8	9	28	16.9
Total	10	21	46	88	165	100
%	6	13	27.9	53.1	100	

Tumor stage: According to the TNM staging criteria, the majority of patients (81.2%) were diagnosed with late-stage (stage III and IV) ovarian cancer, 13% at stage2, and only 6% at stage1.

Incidence of ovarian cancer: An increasing trend in the incidence rate of ovarian cancer was observed between 2014 and 2016, after which time it started declining in 2017 and 2019.

With a median follow-up period of 7 years, there were 133 (80.6%) women alive and 32 (19.4%) women died (table 4)

Table 4 Outcome for ovarian cancer

Outcome	Alive	Died
2014	22	9
2015	15	2
2016	23	10
2017	9	2
2018	20	7
2019	17	1
2020	27	1
Total	133	32
%	80.6	19.4

4. Surgery and chemotherapy

Treatment consists of an initial operation followed by chemotherapy and / or radiation therapy. Standard surgical procedures at Al-Sadaqa Obstetrics and Gynecology Hospital included total abdominal hysterectomy, bilateral salpingo-oophorectomy, and laparotomy, which were performed 42% of the patients.

5. Discussion

Ovarian cancer is the most common female genital cancers and a major cause of death from female genital tract malignancies. Most of the patients with ovarian cancer present with advanced stages due to nonspecific symptoms of the disease. Ovarian cancer has the highest mortality rate in developing countries because more than two-third of the cases present at advancedstage 5). Ovarian cancers were the most frequent,comprising 54.4% of all gynecological

malignancies [5]. It is similar to other studies in Libya.[10] and in Pakistan. [11] While Nnadi et al, [12] and Sarkaret al, [13] found that ovarian cancer was the second common gynecological malignances.

In southeastern Yemeni patients with ovarian cancer, the median age at diagnosis (48.14 years) was similar to that of women in South Asian countries [14-16]. Women >40 years of age were the most affected by ovarian cancer in southeastern of Yemen.This result is in contrast to Western data, which indicate that the majority of malignant ovarian cancers occur within the fifth to seventh decades of life [15].

The result of this study showed an increase in the incidence of ovarian cancer. In contrast to the Asian region, the developed countries have shown a decreasing incidence in some studies [17-18].

As observed in China, the incidence of ovarian cancer increased significantly over the 1999-2006 period, while there was a marked decrease in urban women over the 2006-2010 period, but a steady increase was observed in rural women [19].

Further studies in Karachi found that the incidence of ovarian cancer is stable but includes a relatively younger age group [20].

This study showed increasing levels of ovarian cancer in Southeast Yemeni women and these results will help to understand the trend in ovarian cancer mortality that is likely to lead to an increased burden of this cancer in the future. This cancer does not have effective screening and routine screening of women for all gynecological malignancies in southeastern Yemen and is not recommended by any professional community as no experience has shown improved survival for women screened.

About 80% of women diagnosed with ovarian cancer are diagnosed with late-stage disease, which is associated with a poor prognosis [21]. The standard of treatment for advanced ovarian cancer requires aggressive surgical removal of the tumors (cytoreduction surgery) followed by platinum / taxine based chemotherapy. Optimal tumor cytoreduction surgery is directly related to the results of ovarian cancer, which are associated with improved median survival [22-24].

6. Conclusion

Ovarian cancers were the most common gynecological malignancy in middle aged women in southeastern Yemen (mean age 48.14 years). Most of the ovarian cancer patients presented in advanced stages. The Serous cystadenocarcinoma and Mucinous cystadenocarcinoma were the most common histopathological presentation of ovarian cancer types. Developing strategy for early detection and screening of ovarian cancers is urgently recommended.

Compliance with ethical standards

Disclosure of conflict of interest

 Authors declare no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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