ORIGINAL ARTICLE

Factors Linked with Prognosis in Epithelial Ovarian Cancer: A Study From Lahore, Pakistan

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ABSTRACT

Background: Current study compared prognosis variables in epithelial ovarian cancer regarding survival and expired status with follow up of 30-36 months. The variables analyzed for prognosis were age, BMI, marital status, FIGO stage, Type of tumor and parity. Identifying the factors affecting prognosis give insight of disease variation among ethnicities.

Objective: It was assumed that certain factors are linked with prognosis of ovarian cancer. Therefore, the factors like age (premenopausal and postmenopausal), BMI normal (25-29) and non-normal (>30), marital status (Married and unmarried), FIGO (I-IV) stage of tumor, tumor type (Malignant and borderline) and parity status (nuliparous, primiparous, multiparous) were analyzed.

Study Design: This is a Retrospective Study.

Place and Duration: Current study is a part of PhD research work and the period of this research was from July 2018 to July 2019. All the subjects of study were followed back after 30–36-month interval gap (2021-2022) from sample collection date to follow up date, and survival status was investigated.

Methodology: This study was conducted on 70 diagnosed epithelial ovarian cancer who were recruited for PhD research project. After the completion of study the participants were followed up after gap of (average) 30-36 months from sample collection time. Data was fetched telephonically from alive patients themselves while from first degree relatives of those who were found expired when traced.

Results: This study reported non-significant impact of Age (Premenopausal, postmenopausal), BMI, tumor Type, marital status and Parity on prognosis of ovarian cancer. However, this study reported significant association of FIGO stage of tumor with prognosis of survival with p=0.016.

Practical Implication: The second most frequent gynecological cancer is ovarian cancer, which has a 40% to 45% 5-year survival rate. Based on prognostic criteria, this ratio ranges from 15% to 95%.[1] Prognosis is influenced by a wide range of clinical, pathological, and biological aspects. In this study, prognostic variables for advanced epithelial ovarian cancer were evaluated. Factors linked with prognosis of ovarian cancer are shown which will spread awareness in the community regarding Ovarian Cancer and bring some change in the community.

Conclusion: Therefore, it was concluded that BMI, Stage of tumor, Type and Parity impose impact on life of women being diagnosed with ovarian cancer.

Keywords: Ovarian cancer, prognosis, FIGO, parity, BMI, Chemotherapy, EOC, Premenopausal

INTRODUCTION

Ovarian epithelial cancer is still a fatal condition. Physicians who meet women with persistent lower abdomen symptoms must keep a high index of suspicion because there is no reliable screening tool[2, 3]. The survival rate of ovarian cancer among patients is very low but epithelial ovarian cancer is more destructive gynecologic malignancy in women[4, 5]. When compared to other histological subtypes, such as the more prevalent serous carcinoma, clear cell carcinoma is associated with a worse prognosis if discovered at an advanced stage, because it has different molecular, clinical, and pathological characteristics from the other histological subtypes of epithelial ovarian cancer[6, 7]. For epithelial subtypes, the current recommended frontline therapy is still upfront surgery followed by chemotherapy using a combination of a platinum medication and paclitaxel. Individualized examinations and tailored management are especially necessary for aggressive or recurring ovarian cancer[2, 8].

Worldwide the reported mortality in epithelial ovarian cancer is high. This is reported to be at eighth place of cause of death in women [9, 10]. There are multiple known factors e.g., nulliparity, early menarche, late menopause being known to be associated with the disease. The advanced treatment modalities has improved outcome in certain cases but recurrence and drug resistance affects the survival [11].The data is inconsistent about effect of BMI on prognosis of ovarian cancer [12] FIGO stage and histological subtype too, directly or indirectly affects the survival outcome [11]. Moreover, this fact cannot be denied that if tumor is diagnosed at early stage it can improves life expectancy [13]. Literature about effect of marital status and parity and is associated with better prognosis of ovarian cancer [6, 11]. Recent studies show that multiparity decreases the risk of type 1 ovarian cancer in women [14].

In Pakistan, epithelial ovarian cancer is the most common gynecologic malignancy that causes fatalities. According to the Pakistan Cancer Society, 29,200 new cases would be identified and 21,500 women will pass away from the disease in 2020.[2, 4] In the last ten years, there have been 30% more cases of ovarian cancer and 18% more deaths from the disease.[13] The prognosis for ovarian cancer is typically poor, however unlike many metastatic epithelial malignancies, some individuals with advanced disease may still be able to receive a cure[8, 13, 15]. In addition, many patients who are not eventually cured have reported feeling better thanks to the development of effective chemotherapy that can be administered with less harm.

Rationale of Study: The rationale of this retrospective study was to identify simple variables which affect prognosis in epithelial ovarian cancer. This study compared prognosis in terms of survival and expired status with follow up of 30-36 months from date of sample collection to date of follow up. The variables analyzed for prognosis were age, BMI, marital status, FIGO stage, Type of tumor and parity. Identifying the factors affecting prognosis give insight of disease variation among ethnicities. It was assumed in different studies of number of researchers that certain factors are linked with prognosis of ovarian cancer. This study compared prognosis in terms of survival and expired status with follow up of 30-36 months from date of sample collection to date of follow up.

METHODLOGY

This retrospective study was carried out on 70 diagnosed (histologically) ovarian cancer cases who were recruited as part of PhD research project. The study period of this research was from July 2018 to July 2019. All the subjects of study were followed back after 30–36-month interval gap (2021-2022) from sample collection date to follow up date, and survival status was

investigated. The information was fetched telephonically from alive patients themselves or from first degree relative (parents, husband, sister, brother or children of the demise subject). The survival status was later incorporated in already available patient's questionnaire proforma.

Exclusion and Inclusion Criteria: Exclusively ultrasound scans, patients underwent clinical examinations, following the surgery and blood marker measurements were considered at least every one month while inclusively the frequency of recurrence, overall survival, disease-free survival, reproductive result, and the number of pregnancies were observed respectively.

Statistical Anlaysis: The data was entered in Statistical Package for Social Sciences (SPSS) version 24. The bivariate frequency with row percentage was calculated to see the highest percentage in characteristics with respect to survival status. Chi-Square was applied to see the significant impact of factors on survival status. The p-value less than 0.05 was considered significant.

RESULTS

The factors like age (premenopausal < 55 year and postmenopausal ≥ 55year), BMI (normal 25-29 and non-normal >30), Marital status (Married and unmarried), FIGO (I-IV) stage of tumor, tumor type (Malignant and borderline) and parity status (nuliparous, primiparous, multiparous) were analyzed for any association with prognosis. Many ovarian cancer patients are curious about the prognosis for their stage of the disease. A better prognosis is typically linked to early-stage disease rather than advanced stage disease. Ovarian cancer can occasionally run in families. Obvious signs of ovarian cancer, like bloating, are not always present. Oftentimes, ovarian cancer is discovered too late, although an early diagnosis may make the disease more manageable.

In table-1 the expired Premenopausal (15± 0.1) at 37% and in Postmenopausal (15± 0.2) at 50% while survived Premenopausal (25± 0.2) at 63% and in Postmenopausal (15± 0.2) at 50% with the non-significant (P≤0.30) result were obtained. The findings were presented as standard mean deviation in table-1.

Table-1: Factors linked with Prognosis of ovarian cancer

Age	Survival Status				P-Value
	Expired			Survived	
Premenopausal <55year	15± 0.1	(37%)	25 ± 0.2	(63%)	0.30
Postmenopausal ≥55year	15 ± 0.2	(50%)	15 ± 0.2	(50%)	
BMI					
Normal (25-29)	13± 0.2	(42%)	18 ± 0.2	(58%)	0.89
Non-Normal (>30)	17 ± 0.1	(43%)	22± 0.2	(57%)	
MARITAL STATUS					
Unmarried	10 ±01	(56%)	8 ±01	(44%)	0.21
Married	20±01	(38%)	32 ±01	(62%)	
Figo Stage					
Stage I & II	10 ±01	(28%)	25±01	(72%)	0.016
Stage III & IV	20 ±01	(57%)	15±01	(43%)	
TUMOR TYPE					
Malignant	20±01	(45%)	24±01	(55%)	0.56
Borderline	10±02	(38%)	16±01	(62%)	
PARITY					
Nulliparous	10 ±01	(53%)	9±01	(47%)	0.38
Primiparous	4 ±01	(28%)	10 ±01	(72%)	
Multiparous	16 ±01	(43%)	21±01	(57%)	

Similarly expired and survived levels of unmarried (10 ±01, 56%) (8 ±01,44%) and married (20±01, 38%) (32 ±01,62%) whereas FIGO stage I, II, III and IV were (10 ±01, 28%) (25±01,72%) (20 ±01, 57%) (15±01,43%). Tumor type, malignant (20±01 ,45%) (24±01, 55%), Borderline (10±02, 38%) (16±01, 62%) and Nulliparous, Primiparous and Multiparous expired and survived levels (10 ±01, 53%) (9±01,47%) (4 ±01, 28%) (10 ±01, 72%) and (16 ±01, 43%) (21±01, 57%) were seen respectively.
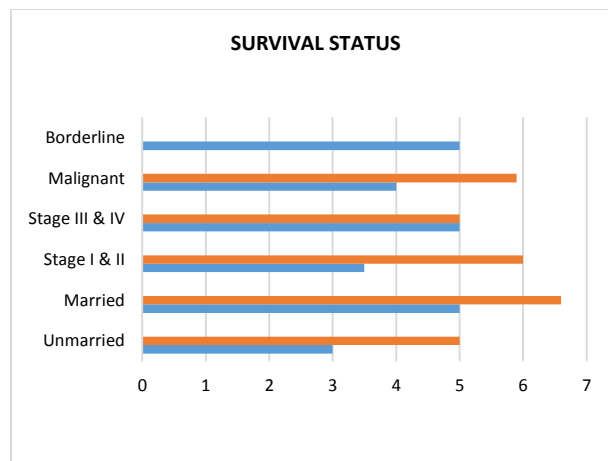

Fig-1: Factors linked with Prognosis of ovarian cancer

DISCUSSION

In present study subjects were followed up after 30-36 (average) months and mean age of survival after diagnosis of ovarian cancer was found, 30-36 months while another study reported 22 months [13, 16]. The present study reported premenopausal (<55 year) women were (63%) who survived in follow up period of 30-36 months[2, 17]. This result is in agreement with another study who reported more women less than age 50 year who survived and had less risk of mortality [8, 18]. In this study, the tumors were categorized into malignant (serous ,mucinus, endometrioid and clear cell high grade) while borderline were low grade serous mucinus cytology positive and adeno variant). Accordingly this study find less survival (55%) among malignant category which is consistent with other study who reported less survival among type 2 ovarian cancer [10, 13]. In present research the p value for BMI when compared among normal and non-normal categories was 0.89[2]. While in another study which was carried out on 119 women of stage III and IV diagnosed with ovarian cancer, when BMI was compared it was non significant p 0.263 [19, 20]. Another study presented survival prognosis in early stage (90%) and 53.3% late stage[15, 21], which is in agreement with present study with 72% stage I, II vs 43% stage III, IV. Another research reported association of FIGO with cancer associated death with p<0.0001 reflecting that higher tumor stage affect survival and caused early death [5, 7, 11]. The current study reported 72% primiparous and multiparous (57%) women who survived (p=0.38) while another research presented p=1.00 for nulliparous and multiparous women. Whereas, another study presents no effect of parity on prognosis [5, 13, 15, 18].

The current study serves as a helpful resource for the significance of using taxane-based chemotherapy as the frontline therapy for all patients with ovarian cancer[1]. It was discovered that stage, a prognostic factor known by prior research, significantly affected the survival of individuals with EOC [22]. The majority of studies also show that the patient's age at diagnosis is a significant prognostic factor. We also discovered that the stage of the disease and the patient's age at diagnosis were predictive variables that affected the survival of EOC patients in the current investigation [23]. In the meanwhile, it was claimed that another significant prognostic factor in individuals with EOC was the size of the remnant tumor.[1]

Conclusions about the influence of residual tumor in the current study cannot be made due to the considerable absence of information about the status of residual tumor in the database.[1] The population-based design of our study, which entailed a sizable sample size, and the representativeness we previously highlighted were its key areas of strength[23]. Despite the lack of a central review for histology, the excellent availability of gynecologic pathologists at the majority of hospitals in Lahore, particularly medical centers, may have contributed to the study's high quality

histology data [24]. Nevertheless, the database did not contain specific details on adjuvant chemotherapy treatments, such as the dose given, or the outcomes of blood tests, such as CA125 levels[1]. Despite the database's quality improving, not all the data for each patient was accurate. Yet, the current analysis clarifies the predictive significance of several variables, including histological type, usage of chemotherapy based on taxanes, stage, and age at diagnosis.[22] The results highlight the significance of histology-focused research and the selection of treatments, such as the inclusion of taxane-based chemotherapy, which would merit future study.[1]

CONCLUSION

This can be concluded that certain indicators of prognosis show inconsistent findings among various ethnicities and regions of the world. The objective of present study was to analyze and have pilot view of the factors associated with ovarian cancer prognosis for recruited sample size. This study is conclusive of positive and significant association of FIGO stage with prognosis of ovarian cancer among Pakistani women.

Conflict of Interest: No conflict of interest was faced during research.

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Authors Contribution: Every author contributed with their hearts encouraging effort in research.

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