Case Report

Retrospective Study on Ovarian Carcinoma at Khwaja Yunus Ali Medical College & Hospital

Rahman P[1*], Joty FS[2], Begum A[3]

[1]Dr. Parvin Rahman, Professor, Department of Gynecology & Obstetrics, Khwaja Yonus Ali Medical College & Hospital, Rajshahi, Bangladesh

[2]Dr. Fahmida Sharmin Joty, Assistant Professor, Department of Gynecology & Obstetrics, Bangladesh Medical College Hospital, Dhaka, Bangladesh

[3]Dr. Ayesha Begum, Assistant Professor, Department of Gynecology & Obstetrics, Khwaja Yonus Ali Medical College & Hospital, Rajshahi, Bangladesh

Abstract

Introduction: Cancer remains a significant public health challenge globally, with varying prevalence and characteristics across different regions. This study aimed to analyze the prevalence and characteristics of cancer, with a particular focus on ovarian cancer, at Khwaja Yunus Ali Medical College & Hospital in Bangladesh. ***Methods:*** This retrospective study reviewed hospital records from January 2021 to August 2022, encompassing 6,785 cancer diagnoses of various types and affecting both genders. The study focused on the prevalence and characteristics of these cancers, particularly ovarian cancer, among female patients. Data on gender distribution, age distribution, and histological types of ovarian cancer were analyzed using descriptive statistics and comparative analyses. ***Result:*** The study revealed a nearly equal gender distribution among cancer patients, with females slightly outnumbering males (50.49% vs. 49.51%). Among the 3,426 female cancer patients, 3.24% were diagnosed with ovarian cancer. Within the gynecology ward subset (n=878), ovarian cancer accounted for 5.35% of cases. The age distribution of ovarian cancer patients ranged from 8 to 67 years, with a higher incidence in the 31-50 years age group. Histologically, Serous Cystadenoma was the most prevalent type of ovarian cancer (58.56%), followed by Teratoma (25.23%) and Endometrioid (16.22%). ***Conclusion:*** The study provides a comprehensive overview of cancer prevalence in Bangladesh, highlighting the significant presence of ovarian cancer among women, especially in their most productive years. The findings emphasize the need for early screening, awareness programs, and personalized treatment strategies, contributing valuable insights for healthcare policy and oncology research in low- and middle-income countries.

Keywords: Cancer, Ovarian Cancer, Epidemiology, Prevalence.

INTRODUCTION

Cancer, a leading cause of mortality worldwide, presents a significant public health challenge, with its prevalence and impact varying across regions and populations. In Bangladesh, a country that has made notable strides in health outcomes since its independence, the cancer scenario remains a critical area of concern [1]. Globally, ovarian cancer, accounting for 5% of cancer deaths among women in the United States, is a significant contributor to this burden, with disparities in incidence and survival rates observed across different ethnic and racial groups [2]. While the incidence of ovarian cancer is higher in European American women, African American women exhibit poorer survival rates, a disparity not fully explained by access to surgery and treatment alone [2]. This highlights the complexity of ovarian cancer epidemiology, influenced by a myriad of factors including race, ethnicity, and socioeconomic status. The prevalence of cancer and its variations between genders is a critical aspect of cancer epidemiology. A study conducted in Isfahan, Iran, reported a significant disparity in the incidence of genital cancers between genders, with a higher prevalence of

ovarian cancer in females [3]. This aligns with global trends where gender disparities in cancer prevalence are evident [4,5]. Such disparities underscore the need for gender-specific public health strategies and interventions. In the context of Bangladesh, understanding these gender-based differences is crucial for developing targeted healthcare policies and improving cancer care. Ovarian cancer is globally recognized as the seventh most common cancer among women, and is the eighth most common cause of mortality [6,7]. The epidemiology of ovarian cancer, particularly in the context of Bangladesh, is an area that warrants detailed exploration. Studies have shown that the risk factors and incidence of ovarian cancer vary by histotype and are influenced by race and ethnicity [8]. For instance, the incidence of high-grade serous ovarian cancer, the most common and lethal histotype, has been observed to decrease over time across all racial and ethnic groups in the United States, with the largest decrease seen in non-Hispanic White women [8]. This indicates a potential shift in the epidemiological landscape of ovarian cancer, which may have implications for the South Asian population, including Bangladesh. Furthermore, the management and treatment of ovarian cancer have evolved globally, with advancements in surgical techniques and chemotherapy regimens. However, the accessibility and application of these advancements vary across regions. In Bangladesh, where healthcare resources and infrastructure may differ from more developed countries, understanding the current management practices for ovarian cancer is vital. This includes exploring how these practices compare with global standards and identifying any gaps or unique challenges faced in the region. The study of ovarian cancer in Bangladesh is not only crucial for addressing the immediate healthcare needs but also for contributing to the global understanding of this disease. By comparing the prevalence and management of ovarian cancer in Bangladesh with global statistics, we can gain insights into the unique epidemiological and clinical characteristics of ovarian cancer in this region. This comparison is essential for identifying specific needs and opportunities for improving ovarian cancer care in Bangladesh and potentially other similar settings. This study will contribute to a deeper understanding of the epidemiological patterns, management procedures, and treatment outcomes of ovarian cancer in Bangladesh. By doing so, it will provide valuable data that can inform public health policies, healthcare practices, and future research directions, ultimately aiming to improve the outcomes and quality of life for women affected by ovarian cancer in Bangladesh and beyond [9–11].

METHODS

This retrospective study, conducted at Khwaja Yunus Ali Medical College & Hospital, analyzed hospital records from January 2021 to August 2022, encompassing 6,785 cancer diagnoses of various types and affecting both genders. The study primarily focused on the prevalence and characteristics of these cancers, with special attention to ovarian cancer. Patient records were meticulously reviewed to extract relevant data, including demographic information, cancer type, stage at diagnosis, and treatment modalities. For ovarian cancer cases, staging was determined based on the FIGO (International Federation of Gynecology and Obstetrics) system, which classifies the extent of the disease into four main stages, ranging from Stage 1 (limited to the ovaries) to Stage 4 (distant metastasis). This staging is crucial for understanding the severity and spread of ovarian cancer in the patient population. The data collection process adhered to ethical standards, ensuring patient confidentiality and compliance with relevant regulations. Statistical analyses were performed to determine the prevalence and distribution of cancer types. Descriptive statistics summarized patient demographics and cancer types, while comparative analyses highlighted differences in prevalence between genders and among cancer types. The prevalence of ovarian cancer, categorized by FIGO staging, was then compared with global statistics to provide a broader epidemiological context. This comparison aimed to contextualize the findings within the global landscape of ovarian cancer prevalence and management.

RESULTS

Table 1: Gender distribution of all cancer patient records (N=6785)

Gender	Frequency	Percentage
Male	3359	49.51%
Female	3426	50.49%

Table 1 illustrates the gender distribution among the 6,785 patients included in this study, revealing a balanced representation between males and females. Of these patients, 3,359 (49.51%) were male, while 3,426 (50.49%) were female. This near-equal distribution provides a gender-balanced perspective on the cancer prevalence within the study's patient population.

Table 2: Prevalence of ovarian cancer among female cancer patients (n=3426)

Cancer Type	Frequency	Percentage
Ovarian Cancer	111	3.24%
Non-Ovarian Cancer	3315	96.76%

In Table 2, the focus shifts to the prevalence of ovarian cancer among the 3,426 female cancer patients. It is observed that 111 females, or 3.24% of this group, were diagnosed with ovarian cancer. The remaining 3,315 female patients, representing 96.76%, were diagnosed with other types of cancer. This data underscores the relative incidence of ovarian cancer in comparison to other cancers among the female cohort.

Table 3: Incidence of ovarian cancer among only the gynecology ward patients (n=878)

Type of patients	Frequency	Percentage
Ovarian Cancer	47	5.35%
Other Gyne cases	831	94.65%

Table 3 examines the incidence of ovarian cancer among a subset of patients admitted to the gynecology ward, totaling 878. Within this group, ovarian cancer was diagnosed in 47 patients, accounting for 5.35% of the gynecology ward admissions. The other 831 patients, making up 94.65% of this cohort, were diagnosed with various other gynecological conditions, highlighting the specific prevalence of ovarian cancer in a specialized clinical setting.

Table 4: Age distribution of ovarian cancer cases (n=111)

Age range	Frequency	Percentage
≤10 years	1	0.90%
11-20 years	5	4.50%
21-30 years	15	13.51%
31-40 years	37	33.33%
41-50 years	42	37.84%
51-60 years	11	9.91%
Range	8-67 years	

Table 4 presents the age distribution of ovarian cancer cases among the 111 patients diagnosed. The ages range from 8 to 67 years, indicating a wide age spectrum affected by this cancer. The age group distribution shows a single case (0.90%) in patients aged ≤10 years, 5 cases (4.50%) in the 11-20 years group, 15 cases (13.51%) in the 21-30 years group, 37 cases (33.33%) in the 31-40 years group, 42 cases (37.84%) in the 41-50 years group, and 11 cases (9.91%) in the 51-60 years group. This distribution highlights a higher incidence of ovarian cancer in the 31-50 years age range.

Table 5: Distribution of different types of ovarian cancer among patients (n=111)

Type of ovarian cancer	Frequency	Percentage
Serous Cystadenoma	65	58.56%
Teratoma	28	25.23%
Endometrioid	18	16.22%

Table 5 details the distribution of histological types of ovarian cancer among the study's 111 cases. The data indicates a predominance of Serous Cystadenoma, diagnosed in 65 patients (58.56%). Following this, Teratoma was identified in 28 patients (25.23%), and Endometrioid ovarian cancer was found in 18 patients (16.22%). This distribution provides insight into the most common histological subtypes of ovarian cancer in the patient population.

DISCUSSION

The current retrospective study conducted at Khwaja Yunus Ali Medical College & Hospital, encompassing 6,785 cancer diagnoses, offers significant insights into the prevalence and characteristics of cancer, with a particular focus on ovarian cancer. The gender distribution of the cancer patients in this study revealed a nearly equal representation between males (49.51%) and females (50.49%). This balanced gender distribution is consistent with global cancer trends, where gender parity in cancer prevalence is increasingly observed [12]. However, it contrasts with certain cancer types like head and neck cancers, where a higher male predominance is noted, often attributed to lifestyle factors such as tobacco use [12–14]. The prevalence of ovarian cancer among female patients was found to be 3.24%, a figure that aligns with global ovarian cancer statistics, indicating that ovarian cancer, while not the most common, remains a significant concern among women [15,16]. The higher prevalence of non-ovarian cancers (96.76%) in the female cohort mirrors the global burden of breast cancer, which is the most common malignancy among women worldwide [15]. In the subset of patients admitted to the gynecology ward, ovarian cancer accounted for 5.35% of the cases. This higher incidence within a specialized clinical setting underscores the importance of targeted screening and diagnostic approaches in gynecological wards. The findings suggest that ovarian cancer, while less prevalent in the general population, is a significant concern in specialized clinical settings, necessitating focused attention and resources. The age distribution of ovarian cancer patients ranged from 8 to 67 years, with a notable concentration in the 31-50 years age range. Although ovarian cancer is not common among younger females, the current study had one case of cancer ovarian cancer at 8 years of age. This distribution pattern is particularly significant as it highlights the impact of ovarian cancer on women in their most productive years, aligning with global trends where the incidence of certain cancers, like breast cancer, is seen to be increasing among younger women [15,17]. The early onset of ovarian cancer in this age group emphasizes the need for early screening and awareness programs, especially in countries like Bangladesh where late presentation is common. The histological analysis of ovarian cancer cases revealed a predominance of Serous Cystadenoma (58.56%), followed by Teratoma (25.23%) and Endometrioid (16.22%). This distribution is reflective of the global histological patterns of ovarian cancer, where serous carcinomas are the most common subtype [18]. The prevalence of different histological types underscores the heterogeneity of ovarian cancer and highlights the need for personalized treatment approaches, as indicated by the study on the pathologic distribution at the time of interval tumor reductive surgery [18]. In conclusion, the study's findings provide a comprehensive overview of cancer prevalence, with a specific focus on ovarian cancer, in a Bangladeshi context. The nearly equal gender distribution of cancer cases, the significant prevalence of ovarian cancer

among women, the age distribution of ovarian cancer patients, and the histological types observed, all contribute to a deeper understanding of the cancer landscape in Bangladesh. These findings, when compared with global cancer statistics and trends, highlight both similarities and unique aspects of cancer prevalence in Bangladesh, offering valuable insights for healthcare policymakers, clinicians, and researchers.

Limitations of The Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

In conclusion, this retrospective study at Khwaja Yunus Ali Medical College & Hospital provides critical insights into the prevalence and characteristics of cancer, with a special emphasis on ovarian cancer, in a Bangladeshi context. The nearly equal gender distribution of cancer cases observed in this study reflects a broader trend in cancer prevalence and underscores the need for gender-specific cancer care strategies. The specific focus on ovarian cancer revealed its significant presence among female patients, particularly in the 31-50 years age group, highlighting the importance of early detection and targeted interventions for this demographic. The predominance of Serous Cystadenoma among ovarian cancer cases emphasizes the heterogeneity of this disease and the necessity for personalized treatment approaches. These findings not only contribute to the existing body of knowledge on cancer prevalence in Bangladesh but also underscore the urgent need for enhanced cancer awareness, early screening programs, and tailored treatment strategies. This study's implications extend beyond the immediate clinical setting, offering valuable insights for healthcare policy formulation, resource allocation, and future research directions in oncology, particularly in low- and middle-income countries where healthcare resources may be limited.

REFERENCES

1. Hossain, S. (2017). Moving from MDGs to SDGs: Bangladesh Achievement and Challenges in Health Sector. Journal of Shaheed Suhrawardy Medical College. 7:42.
2. Doherty, J.A., Greene, C.S., Rudd, J.E., Tafe, L.J., Alberg, A.J. & Bandera, E.V. Abstract 3407: Gene expression subtypes of high grade serous ovarian cancer in African American women. Cancer Research. 76(14_Supplement):3407.
3. Tolou-Ghamari, Z. (2019). Investigation of Genital System Cancers Prevalence in Isfahan, Iran. Indonesian Journal of Cancer.13(2):25–8.
4. Kamangar, F., (2006). Dores GM, Anderson WF. Patterns of cancer incidence, mortality, and prevalence across five continents: defining priorities to reduce cancer disparities in different geographic regions of the world. J Clin Oncol. 24(14):2137–50.
5. Haupt, S., Caramia, F., Klein, S.L., Rubin, J.B. & Haupt, Y. (2021). Sex disparities matter in cancer development and therapy. Nat Rev Cancer. 21(6):393–407.
6. McGuire, S. (2016). World Cancer Report 2014. Geneva, Switzerland: World Health Organization, International Agency for Research on Cancer, WHO Press, 2015. Adv Nutr. 7(2):418–9.
7. What Are the Risk Factors for Ovarian Cancer? | CDC [Internet]. 2023 [cited 2023 Dec 25]. Available from: https://www.cdc.gov/cancer/ovarian/basic_info/risk_fact ors.htm
8. Phung, M.T., Pearce, C.L., Meza, R. & Jeon, J. (2023). Trends of Ovarian Cancer Incidence by Histotype and Race/Ethnicity in the United States 1992-2019. Cancer Res Commun. 3(1):1–8.
9. Stamp, M.H., Gordon, O.K., Childers, C.P., Childers, K.K. (2019). Painting a portrait: Analysis of national health survey data for cancer genetic counseling. Cancer Med. 8(3):1306–14.
10. Xu, C., Wang, Y., Yang, H., Hou, J., Sun, L. & Zhang, X. (2019). Association Between Cancer Incidence and Mortality in Web-Based Data in China: Infodemiology Study. Journal of Medical Internet Research. 21(1):e10677.
11. Friesen, M.C., Beane & Freeman, L.E. (2023). Identifying occupational risk factors for cancer in women: a need for further action. Occup Environ Med. 80(9):522–3.
12. Chauhan, R., Trivedi, V., Rani, R. & Singh U. A Study of Head and Neck Cancer Patients with Reference to Tobacco Use, Gender, and Subsite Distribution. South Asian J Cancer.11(1):46–51.
13. Dorak, M.T. & Karpuzoglu, E. Gender Differences in Cancer Susceptibility: An Inadequately Addressed Issue. Front Genet. 3:268.
14. Kim, H.I., Lim, H. & Moon, A. (2018). Sex Differences in Cancer: Epidemiology, Genetics and Therapy. Biomol Ther (Seoul). 26(4):335–42.
15. Nessa, A., Hussain, T., Alam, S.M., Faruk, I. & Jahan, I. (2018). Age distribution pattern of female breast cancer patients in Bangladesh- developing early and presenting late. International Surgery Journal. 5(2):379–82.
16. SEER [Internet]. [cited 2023 Dec 25]. Cancer of the Ovary - Cancer Stat Facts. Available from: https://seer.cancer.gov/statfacts/html/ovary.html
17. Lalrinpuii, E., Bhageerathy, P.S., Sebastian, A., Jeyaseelan, L., VinothaThomas & Thomas, A. (2017). Ovarian Cancer in Young Women. Indian J Surg Oncol.8(4):540–7.
18. Bailey, C.D., Previs, R., Fellman, B.M., Zaid, T., Huang, M., Brown, A. (2021). Pathologic distribution at the time of interval tumor reductive surgery informs personalized surgery for high-grade ovarian cancer. *International Journal of Gynecologic Cancer* [Internet]. 2021 Feb 1 [cited 2023 Dec 25];31(2). Available from: https://ijgc.bmj.com/content/31/2/232