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ANALYSIS OF PREVALENCE OF GYNAECOLOGICAL CARCINOMAS: A SNAPSHOT OF GYNAECOLOGICAL TUMORS IN WOMEN OF PAKISTAN

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Abstract:
Introduction:*A human body is made up of various different types of cells which are polyclonal i.e divided into different sets of populations. Normally the cell turnover is maintained within homeostatic confines e.g the monthly replacement of endometrial lining after menstrual shedding in post-pubertal non-pregnant females.* ***Objectives of the study:*** *The basic aim of the study is the analysis of prevalence of gynaecological carcinomas in females: A study based on Pakistani environment.* ***Methodology of the study:*** *This study was conducted at Nishtar hospital, Multan during 2012 to 2017. This was done with the permission of ethical committee of the hospital and with the permission of patients. Total number of participants from 2012 to 2017 was 1323 (female) which belongs to different parts of lower Punjab.* ***Results:*** *Studies have shown that with the passage of time prevalence of gynecological carcinomas is increasing throughout the world. Consequently, the death rate in Pakistani woman due to attributed to gynecological cancers has doubled in the last decade. The main reason behind this is the fact that more than70% of cancer patients report with very advanced stage of malignancy.* ***Conclusion:*** *This data suggests that the Prevalence of Gynecological tumors is on the rise and over the last few years this has contributed to high charge per unit of mortality in Pakistan.*

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INTRODUCTION:

A human body is made up of various different types of cells which are polyclonal i.e divided into different sets of populations. Normally the cell turnover is maintained within homeostatic confines e.g the monthly replacement of endometrial lining after menstrual shedding in post-pubertal non-pregnant females [1]. However in any event of a Pro-carcinogenic insult e.g HPV infection, this polyclonal population of cells can be replaced by a monoclonal population. This monoclonal population can be benign or malignant[2]. Benign Tumors remain localized and do not spread beyond their locality of origin. Malignant tumors however have the tendency to invade locally and then disseminate throughout the body(Metastasis) via either Lymphatic or hematogenous routes. This metastasis allows the tumor cells to extend into several secondary tissues and continue to proliferate while escaping regulatory mechanisms even at these secondary sites. Studies have shown that with the passage of time the prevalence of cancer is increasing thgroughout the world. However a major bulk of this increased load can be attributed to early screening and more effective diagnostic methods [3]. Cancer is the 2nd leading cause of death in both adults and children worldwide. The most common causes of cancer mortality in adults are the Lung cancers. However on basis of Incidence the most common cancer in adults are the Breast/prostate cancers. Studies have shown that in Pakistan due to lack of awareness women do not understand the symptoms that they are facing leading to delays in reporting their ailment and thus usually present at a very late stage of the disease[4]. This constitutes one of the major reasons why it has become difficult to diagnose, intervene and treat cancer (Malignant Tumor) in its early stages of development. Following is a list of the few of the symptoms in which the suspicion of cancer may arise and thus must be ruled out:

1. Abnormal vaginal bleeding or discharge

2. Pelvic pain or pressure.

3. Abdominal or back pain.

4. Bloating.

5. Changes in bowel and/or bladder habits (increased urination, constipation, and diarrhea)

6. Itching or burning of the vulva

7. Weight loss(chacexia) [5]

Although various etiological factors can be attributed to the causation of cancer, but the most preventable of these factors is the infectious etiology. The most notorious of these infectious causes is Human Papilloma Virus (HPV) which spreads through sexual contact. There are different strains of this virus and each of these bears a different oncogenic potential. HPV 6 and 11 are low risk strains and usually cause warts, while HPV 16,18,31 and 33 are high risk strains and can cause dysplasia which can lead to tumor [6]. Most women are able to adequately resist the effects of this virus however 55% of the times this virus can leads to neoplastic changes. Immunization against HPV(recommended at age 10 to 18 years) is the best preventive measure available to reduce the risk of HPV associated cancers (e.g cervical, vaginal, vulvar, penile, mouth and throat Squamous cell carcinomas). On the other hand, when the treatment is taken under consideration, the general options available are Chemotherapy, Radiotherapy, Immunomodulators and/or Surgical Resection. However as most cases report in the advance stages of the disease the management plan often endorsed is of Palliative care rather than a curative therapy.

Background of the study

The following report contains a thorough analysis on the prevalence of gynecological carcinomas in south Punjab. The main objective behind doing the research was to study the prevalence of most common cancer in women of Pakistan, so it can be eradicated at the most initial level in order to lower the increasing rate.

Objectives of the study

The basic aim of the study is the analysis of prevalence of gynaecological carcinomas in females. It was conducted to identify the most common gynaecological cancer reported at Nishtar so that the preventive and therapeutic measures can be made more focused on that particular subtype of cancer.

Methodology of the study

This study was conducted at Nishtar hospital, Multan during 2012 to 2017. This was done with the permission of ethical committee of hospital and with the permission of patients. Total number of participants from 2012 to 2017 was 1323 (female) who belong to different parts of Punjab.

Collection of data

The basic method utilized in order to attain the data, involved conducting an interview with the management team of the Nishtar Hospital that is based in South Punjab. The data attained was secondary data which was already recorded by the Hospital over the afro mentioned period of time. The

basic reason behind using this method was to ensure the authenticity of the data.

Statistical Analysis

Statistical analyses (Anova Test and Post Hoc) were performed using the SPSS software program (17.0). All results were expressed as the mean ± standard deviation (SD). P value below 0.05 was considered to be statistically significant.

RESULTS:

After going through the Hospital records, following is the data gathered over the 5 years of time span.

Table 01: Demographic characteristics of different forms of cancer

Demographic characteristics		**(%)**		**P value**
		With infection	**Without infection**	
Age (years)	≤25 >31	56.1 44.0	61.5 38.5	0.345
Body mass index (Kg/m$^{2)}$	≤30 >30	52.2 47.8	42.3 57.7	0.13*
Max age of carcinoma (%age)	≤40% >40%	44.0 56.0	42.8 57.2	0.876
Types of carcinoma	Ovarian Cervical Vaginal Uterine Endometrial	25.34 22.7 5.6 2.7 2.3	28.3 26.5 14.2 13.6 12.34	0.012*

Table 02: ANOVA results for the year 2012-2017

	Ovarian cancer	**Cervical cancer**	**Vaginal cancer**	**Uterine cancer**	**Endometrial cancer**	**Mean**	**SD**
2012	0	0	2.5	23.25	369	8.65	24.76
2013	0.14	0.7	1.76	4.45	314.1	7.53	23.77
2014	0.04	0.4	1	3.45	146.13	7.20	18.23
2015	0.1	0.65	1.95	5.25	284.54	9.01	29.51
2016	0.28	0.71	0.92	1.45	25.54	1.39	2.02
2017	0.26	0.58	0.79	1.06	10	1.056	1.00

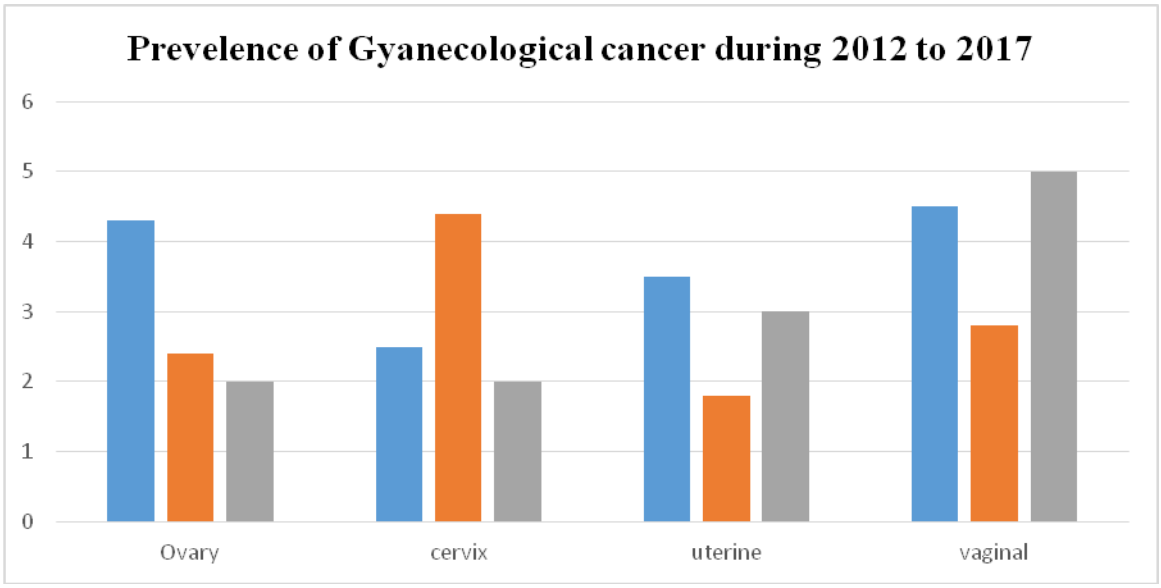


Figure 01: Graphical representation of major forms of gynaecological cancers

FINDINGS:

Following points are the main findings after conducting the research

1. 101 out of 1304 of total diagnosed cases in Nishtar Hospital in 2016 were reported.
2. From the above given data it can be seen that 6.4% of all cases are gynecological tumors of which 50% are ovarian and 96 patients were diagnosed out of 1483.
3. 107 out of 1341 of total diagnosed cases in Nishtar Hospital in 2013 were reported.
4. 129 out of 1403 of total diagnosed cases in Nishtar Hospital in 2015 were reported.
5. 101 out of 1323 of total diagnosed cases in Nishtar Hospital in 2012 were reported.

DISCUSSION:

The burden of gynaecological cancer is on the rise worldwide, but it is higher in developing than developed countries, with approximately five million new cancer cases diagnosed annually. The need for novel independent prognostic factors in metastatic breast cancer patients is much lower than the need for dynamic blood markers, which can indicate the treatment efficiency in a reliable and early fashion. Serum tumor markers are an easy, quick, cheap, but rather imprecise and sometimes misleading tool, to monitor the treatment efficacy. However, they are particularly valuable for treatment monitoring in patients that have disease that cannot be evaluated by radiology [10].

Here, by comparing the early and late changes of five blood markers together with CTC changes for PFS prediction, we showed no clear superiority of CTC over the other serum markers. This result was, however, not the primary endpoint of our study, and the statistical power of these analyses may still be discussed, although performed in more than 200 patients. For this analysis, we used the "prognosis-optimized" threshold of ≥ 5 CTC/7.5 ml, which was initially defined as the best dichotomizing threshold for PFS and OS prediction by CTC at baseline and under treatment [13].

Ovarian cancer has the highest mortality rate among gynecologic cancers, even in developing nations. Late stage diagnosis requires long, complex, very aggressive and costly treatment; thus, the management of ovarian cancer in developing countries poses a great challenge. Predictive biomarkers that can guide treatment decision have been sought after to identify subsets of patients who would be “exceptional responders” to specific cancer therapies, or individuals who would benefit from alternative treatment modalities [1].

Uterine/endometrial cancer is the third most common site of gynecological tract malignancies with the majority of patients presenting in the older age groups (>60 years), which is comparable to other studies. Endometrial/uterine (23%) malignancy is the third most common site of gynecological malignancies and the majority of patients present in the older age groups.

These malignancies constitute the third leading site of malignancy in women after breast and ovary. Similarly, one study from India reported that uterine (129 cases) are the third most common malignancy in the female genital tract after cervix, and ovary. In uterus, the main histological type of cancer was endometrial tumor with 66 patients, followed by sarcoma patients. Adenocarcinoma was the most common histological type of endometrial tumor[5].

CONCLUSION:

After going through the above data it can be easily concluded that prevalence of gynecological carcinomas is increasing in Pakistan and something needs to be done about it. Hence, over the last few years this is the cause of the high charge per unit of mortality in Pakistan. According to statistics, just about 500,000 women are detected with bellicose cancer of the cervix per year throughout the world but the developing countries are said to me the most affected. Sadly the exact ratio of women in Pakistan is unknown due to several cultural and non-cultural reasons.

Contribution of authors

All the authors contributed equally. But on behalf of all the co-authors and from myself I want to say special thanks and pay my gratitude to my supervisor **Dr Ijaz Masood (Head of Oncology department)** because without his help and guidance this work would not have been possible.

Conflict of interest

There is no conflict of interest.

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