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Research Article

**ANALYSIS OF LEVEL OF ANTIOXIDANTS IN CERVICAL  
CANCER FEMALE PATIENTS AFTER RECEIVING RADIO  
THERAPY**<sup>1</sup>Dr. Komal Nadir, <sup>1</sup>Dr. Waqas Ahmed, <sup>1</sup>Dr. Sheikh Muhammad Umair Ali  
<sup>1</sup>Bahawal Victoria Hospital, Bahawalpur**Abstract:**

**Introduction:** Cancer of the cervix tends to occur during midlife in women, with half of the patients diagnosed between 25 to 65 years of age. CaCx rarely affects women under the age of 20. Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. **Objectives of the study:** This study aim to investigate the level of antioxidants in cervical cancer female patients after receiving radio therapy. **Materials and methods:** The whole experimental work was conducted at Bahawal Victoria hospital, Bahawalpur during Jan 2018 to May 2018 with the permission of ethical committee. Those cervical cancer patients who receiving radiotherapy were selected to study the antioxidants status in the diseased condition. This study group was divided into further two groups for analysis. **Results:** The data present in this table explains the levels of antioxidants in cervical cancer females. The data suggest that lipid peroxidation is increases in cervical cancer. The reason is due to high damage of membrane and lipid peroxidation products. **Conclusion:** By reducing oxidative stress, antioxidants counteract the effects of chemotherapy-induced oxidative stress on the cell cycle and enhance the cytotoxicity of antineoplastic agents. Increased ratio of Cu/Zn is due to the significant decrease in Zn and concomitant increase in copper.

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**INTRODUCTION:**

Cancer of the cervix tends to occur during midlife in women, with half of the patients diagnosed between 25 to 65 years of age. CaCx rarely affects women under the age of 20. Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Cancer is caused by both external factors (tobacco, infectious organisms, chemicals, and radiation) and internal factors (inherited mutations, hormones, immune conditions, and mutations that occur from metabolism). These contributory factors may act collectively or in sequence to initiate or promote carcinogenesis [1].

Cancer development is a multistage process that requires the collective action of manifold events that occur in one cell alone. Cancer treatment by radiation and anticancer drugs reduces inherent antioxidants and induces oxidative stress, which increases with disease succession [2]. The possible causes of cancer include, damage to DNA by reactive oxygen species, which are at highest rank in the development and onset of cancer [3].

Studies have shown that with the passage of time the prevalence of cancer is increasing throughout 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 2<sup>nd</sup> 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 [5].

**Objectives of the study**

This study aim to investigate the level of antioxidants in cervical cancer female patients after receiving radio therapy.

**MATERIALS AND METHODS:**

The whole experimental work was conducted at Bahawal Victoria hospital, Bahawalpur during Jan 2018 to May 2018 with the permission of ethical committee. Those cervical cancer patients who receiving radiotherapy were selected to study the antioxidants status in the diseased condition. This study group was divided into further two groups for analysis.

Groups	Treatment
A	Control
B	Diseased group

**Blood collection**

5.0 ml blood sample was taken from vein. Blood was further processed for the estimation of MDA. Commercially available enzymatic kits of Randox were used. Blood was centrifuged at 4000 rpm for 10 minutes and serum was separated. Blood samples will be collected into EDTA tubes from fasting proteins. The blood will be centrifuged and indomethacin and butylated hydroxytoluene will be added into the plasma samples before they will be stored at -80°C until analysis.

**Statistical analysis**

The data of respiratory function were compared between the smoker and non-smoker groups using the independent t-test for normally distributed data or the Mann-Whitney U test for other distributions. Differences were considered statistically significant at  $p < 0.05$ .

**RESULTS:**

The data present in this table explains the levels of antioxidants in cervical cancer females. The data suggest that lipid peroxidation is increases in cervical cancer. The reason is due to high damage of membrane and lipid peroxidation products.

**Table 01:** Antioxidants values of control and patients group after radio therapy

Group Statistics					
Vit_E	control	10	8.33150	.946245	.299229
	patients	17	2.47400	.798902	.193762
GSH	control	10	.93150	.283559	.089669
	patients	17	4.15765	.534536	.129644
GPx	control	10	.78900	.344970	.109089
	patients	17	.17750	.038108	.009242
Catalase	control	10	4.33600	.748750	.236776
	patients	17	3.69382	1.188499	.288253
SOD	control	10	.38020	.165513	.052340
	patients	17	.92471	.814660	.197584
MDA	control	10	2.57200	.814886	.257690
	patients	17	1.80729	1.379333	.334537

**DISCUSSION:**

Cancer therapy, such as chemotherapy, can result in the generation of excess ROS/RNS. Thus cancer therapy and the resulting production of excess oxidative stress can damage biological systems other than tumors<sup>6</sup>. 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<sup>7</sup>. However, they are particularly valuable for treatment monitoring in patients that have disease that cannot be evaluated by radiology [8].

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 [9].

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 [10].

**CONCLUSION:**

By reducing oxidative stress, antioxidants counteract the effects of chemotherapy-induced oxidative stress on the cell cycle and enhance the cytotoxicity of antineoplastic agents. Increased ratio of Cu/Zn is due to the significant decrease in Zn and concomitant increase in copper. As this ratio is altered, this could be considered as risk factor for tumor growth or carcinogenesis.

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