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Research Article

**A COMPARATIVE RESEARCH ON T-3 (TRI-
IODOTHYRONINE) ALTERATIONS & T-4 (THYROXINE)
LEVELS OF HORMONE OVARIAN AND BREAST CANCER****Dr. Ehtisham Obed, Dr. Anum Javid, Dr. Syed Jalal Ud Din Bukhari**
Services Hospital, Lahore**Abstract:**

Objective: The purpose of the current research was to interrogate the disparity in the amounts of hormones of thyroid in the sufferers of cancer of milk-secreting glandular organs known as breast and ovary.

Methods: One and twenty persons without any background history of hormones of thyroid were included in the study. The participants were divided into three collections. The groups were given the names of A, B and C. Group A consists of the controls who were the healthy people in the research. Group B consists of the participants suffering of breast cancer and group C consists of the participants suffering of ovary cancer. Five millimetre blood was taken from each participant for testing of the hormones of thyroid.

Results: The numerical data gave a difference in the participants of all the collections of the subjects. A noteworthy boost was viewed in the amounts of the hormones in the participants suffering of breast cancer patients as compared to the hormones of the control participants. Contradictory outcomes were discovered in the patients of the ovary cancer obtained from the amounts of these hormones in the serum. There was a very little difference in the in the T3 & T4 hormones as compared to the healthy participants. The result of this research proved that there is a great disparity in the levels of hormones in the participants of the ovary and breast cancer and healthy controls.

Conclusion: The outcome of this research concludes that an overactive thyroid gland known as hyperthyroidism has an effective influence on the rapid increase in the cancer cell numbers of ovary and breast.

Keywords: Gland, thyroid, hormones, ovary, Tri iodothyronine, Thyroxine, T3, T4, controls, millimetre.

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INTRODUCTION:

During the regulation of many functions of the body, thyroid hormone is to play a very important role [1]. Thyroid hormone is available in two types; tetraiodothyronine and triiodothyronine. Special kinds of cells known as follicular are used for the production and secretion of these hormones [2]. These hormones act in the presence of other cells and their ingredients i.e. the life actions of the triiodothyronine are controlled by the nuclear receptors TRs. α and β are the two type of TR gene being used in the Homo sapiens and encodes the triiodothyronine isoforms. Any metamorphosis in β gene shortens the sensitivity of these hormones [3].

The co regulatory proteins contain co-repressors and co-activators which are used for the repression or the activation of the transcription [3]. The immune response of the thyroid diseases affects the production of the hormones that results overactive or underactive type of gland. These two are the cause of two different dangerous diseases hashimoto's thyroiditis which is abbreviated as HT and graves' disease which is abbreviated as GD [4, 5].

The diseases due to thyroid glands are linked with many other dangerous diseases such as breast cancer [3, 6]. It is truth universally acknowledged that hormones play a vital role in the emergence of this disease of breast cancer. There are some research works which confirmed the link between the cancer of breast and diseases of thyroid but there are some works which are against the early mentioned idea and decline to accept any association between the two diseases. Medical theories also confirmed the effect of iodine on breast, so the acceptance of the iodine in food can be a reason of the breast cancer in different areas of the world.

The association between the thyroid diseases and the breast cancer cells is not a confirm issue, it is still in research. There are some research works which are against any kind of the association but there are some studies which are in favour of this subject. But there are some studies which confirm the link between the ovary cancer and the diseases of thyroid [6, 7, 10-12]. This was the first research of this kind being carried out in this setting, to describe the difficulties initiated by thyroid glands and to know about the association of the ovary and breast cancer with relation to the hormones level.

METHODS:

Five millilitre blood samples from the sufferers of breast and ovary cancer were gathered from the laboratory of oncology department of Allied Hospital, Faisalabad (November, 2016 to September, 2017). The blood samples of the controls were also gathered. The age of those healthy controls was eighteen years to seventy years.

In this research, one hundred and twenty persons were the participants. The table number one describes the division of those participants into three groups. The first group A consists of the controls of healthy people. The next two groups were the confirm patients of the ovary and breast cancer without prior history of thyroid abnormalities.

A special kind of tube BD® was used for the collection of the blood samples from the female participants. The separation of the serum was carried out with the help of centrifugation after the formation of the clots in the tubes.

The separated serum was placed in another tube which was made up of sterile glass. These tubes were store at a temperature of four centigrade after mentioning the patient number on the tubes.

Analysis of Variance abbreviated as ANOVA was used for the analysis of data to know about the significance of this factor.

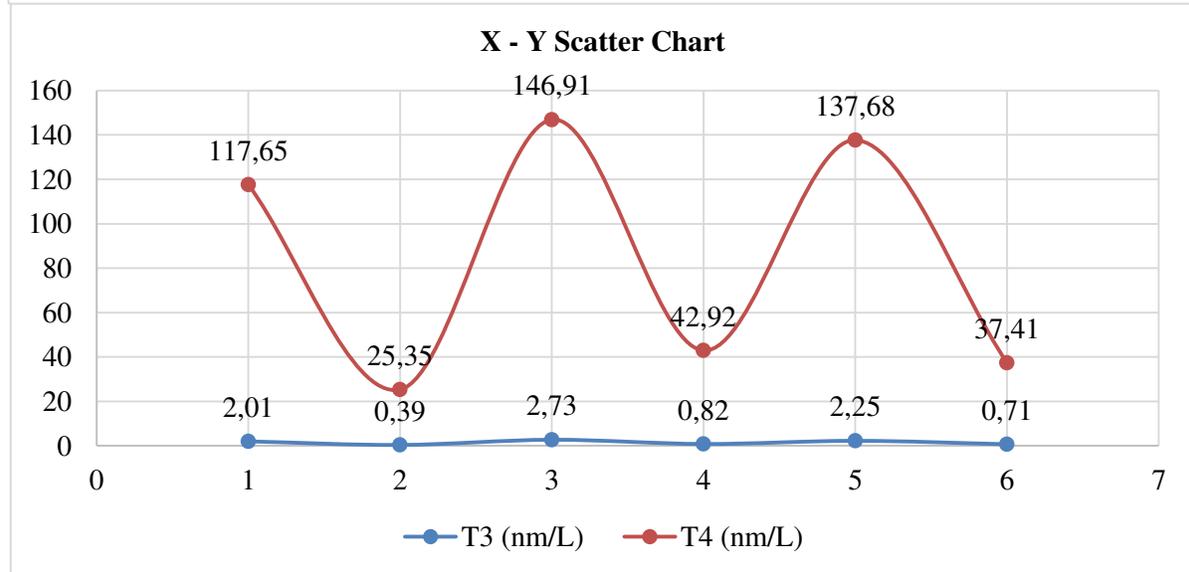
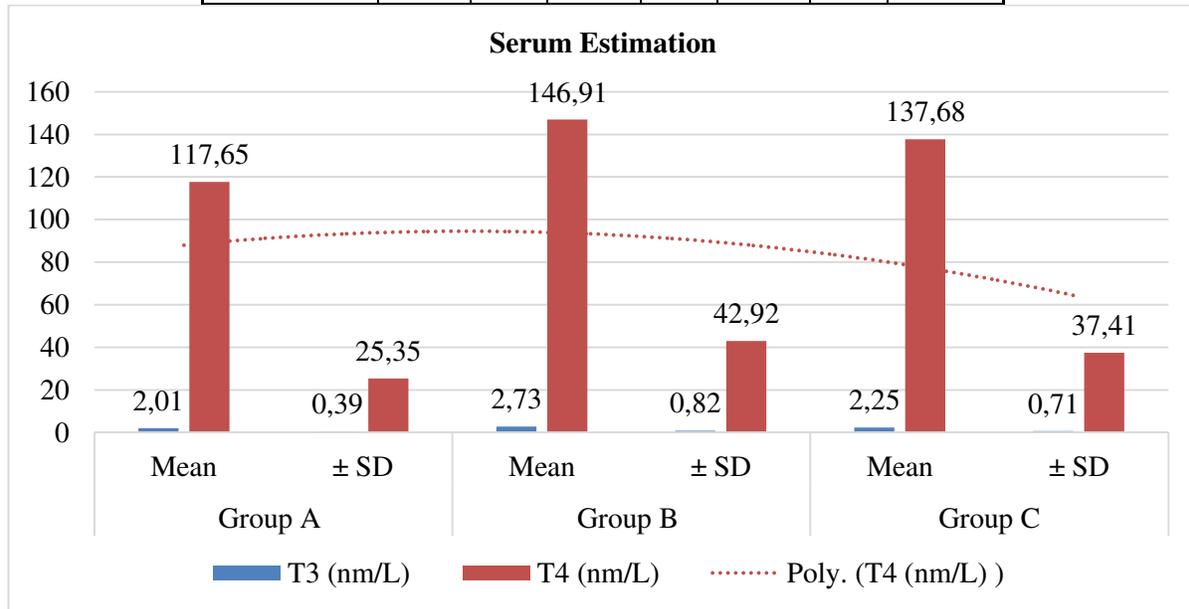
RESULTS:

The average values of the levels of these hormones were observed with significant difference; all three groups compared to the control group of the healthy people. Different comparisons are presented in table number two. There was a noteworthy difference in the T3 amounts in the patients of the breast cancer as compared to the controls and ovary cancer patients when compared to the controls of healthy people. A noteworthy difference was also observed in the amounts of tetraiodothyronine in the patients of ovary and breast cancer as compared to the controls of healthy people.

Table number three provides the positive significant association between the levels of triiodothyronine and tetraiodothyronine in the patients of ovary and breast cancer but there was not any association to judge the levels of these hormones among the people of control group.

Table – I: Estimation of serum T3 and T4 levels

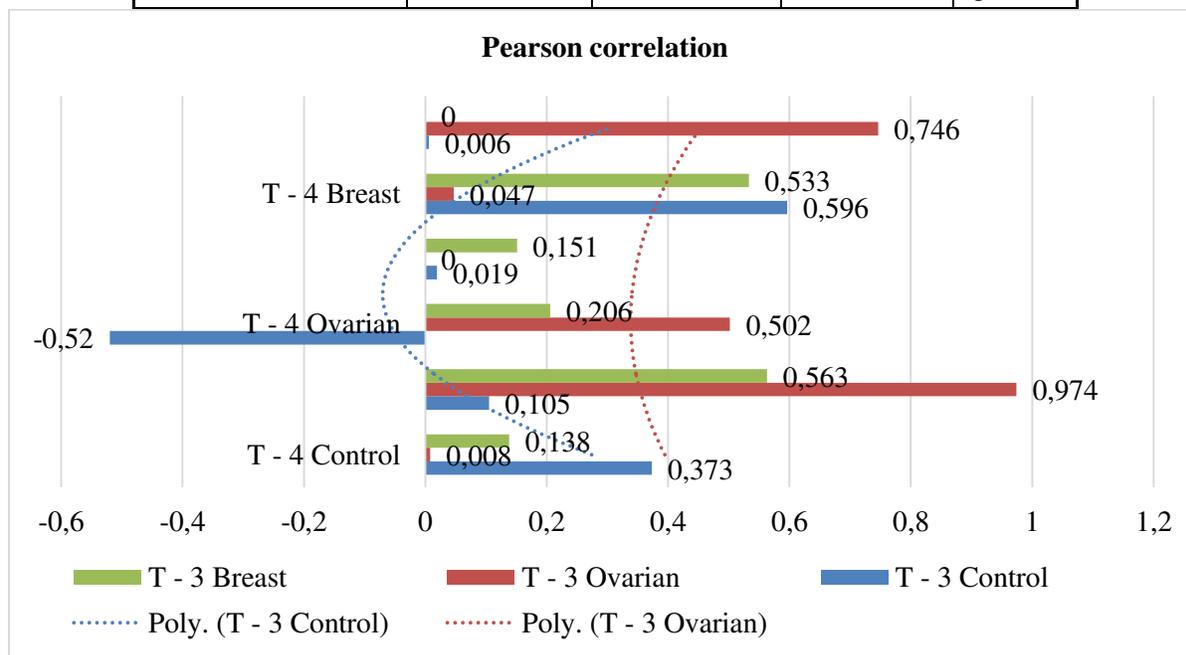
Serum	Group A		Group B		Group C		P-Value
	Mean	± SD	Mean	± SD	Mean	± SD	
T3 (nm/L)	2.01	0.39	2.73	0.82	2.25	0.71	0.000
T4 (nm/L)	117.7	25.4	146.9	42.9	137.7	37.4	0.017

**Table – II:** Multiple comparisons of T3 and T4 levels among the groups

Levels of ...	Control Group	Cancer Group	P value
T3	Control	CA Breast	0.000
		CA Ovary	0.209
T4	Control	CA Breast	0.005
		CA Ovary	0.05

Table – III: Pearson correlation (two-tailed) between t3 and t4 levels among breast and ovarian cancer patients

Pearson correlation	T - 3 Control	T - 3 Ovarian	T - 3 Breast	Values
T - 4 Control	0.373	0.008	0.138	R-value
	0.105	0.974	0.563	p-value
T - 4 Ovarian	-0.52	0.502	0.206	R-value
	0.019	0	0.151	p-value
T - 4 Breast	0.596	0.047	0.533	R-value
	0.006	0.746	0	p-value

**DISCUSSION:**

This research is the landmark to know about the difficulties aroused by the thyroid glands and their association with the ovary and breast cancers with respect to the hormones. An important amount of increase T3 & T4 levels can be noticed in the sufferers of breast cancer as compared to the healthy controls [11, 16]. An overactive thyroid gland known as hyperthyroidism is linked with the patients of the breast cancer with higher levels of T3 & T4. The deficiency of the iodine in the women can also lead to the chance of starting the breast cancer. The emergence of the cancer of breast was very high in the women who have underactive thyroid glands which lead to the low production of the hormones. Those women have to take supplements to kill that deficiency. The rate of the breast cancer was high in the women of taking supplements as compared to the women not taking any supplement to increase the amounts of the hormones.

It was decided that the rate of the cancer of breast

was half in the women who were taking the supplements of the hormones from last five years as compared to the women who were taking these hormones supplements from last fifteen years [17]. A noteworthy increase in the amount of T4 levels was seen in the patients suffering of ovary cancer as compared to the healthy control [10, 12]. Thyroid gland inflammation is the main reason for the ovary cancer. The patients of ovary cancer do not show any remarkable difference in the amounts of the T3 hormones as compared to the healthy controls [18]. There is a very close association in the traits of these hormones affecting each other during transformation [19].

This study is too much important in selecting the patients who were at risk to have ovary or breast cancer with the other biological ingredients which plays a vital role in the spreading of the cancer cells growth. This study also confirmed that high amount of T3 & T4 levels are noticed in the patients suffering of breast cancer as compared to the healthy controls.

There was not any difference in the amount of T3 levels no T4 was observed in the patients suffering of ovary cancer.

CONCLUSION:

This research has an important effect in selecting the women suffering of ovary or breast cancer. The judgement of the amounts of these two hormones with other biological ingredients has a very important effect on the selection of these suffering patients. There are some confused research works about the association of an overactive thyroid gland and cancer in the breast cells, this research provides the further information of those research works and provides the link between the levels of the hormones and cancer in breast cells. This research also provides the basic information in selecting the patients of the ovary cancer with the help of T4 hormone level. This whole research has a flawless effect on selecting the sufferers of the breast and ovary with malfunction of the thyroid gland.

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