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ANALYSIS OF DIFFERENT BIOMARKERS FOR ORAL TONGUE SQUAMOUS CELL CARCINOMA (SCC) AMONG LOCAL POPULATION OF PAKISTAN

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Abstract:
Introduction: Oral tongue squamous cell carcinoma (OTSCC) is the most common malignancy of the oral cavity. OTSCC is increasing in incidence and has an aggressive clinical behaviour with a relatively poor prognosis.
Objectives of the study: The basic aim of the study is to find some important biomarkers which are useful in the diagnosis and treatment of oral tongue squamous cell carcinoma (SCC) among local population of Pakistan.
Material and methods: This cross-sectional study was conducted in Mayo Hospital Lahore in August 2017 till May 2018. The data was collected from 100 patients of OSCC. 5.0 cc blood sample was taken from vein. Blood was further processed for the estimation of serum biomarkers i.e Sialic acid, NO, Vita-A, Vit-E and GSH. 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. Results: The data was collected from 100 patients of both genders. The data represents that there is a statistical difference among control group and patients. The data shows all the expected prognostic markers which used for the assessment of OSC in humans. The values of GSH and SOD shows that these are the most important biomarkers for the analysis of OSC in humans. Blood samples shows the clear values of Vit-A, Vit-C, Vit-E, GSH, Catalase, SOD and MDA with the correlation of some micronutrients e.g zinc and iron.
Conclusion: It is concluded that GSH, MDA and SOD are the important diagnostic biomarkers in the assessment of OSSC.

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INTRODUCTION:

Oral tongue squamous cell carcinoma (OTSCC) is the most common malignancy of the oral cavity. OTSCC is increasing in incidence and has an aggressive clinical behaviour with a relatively poor prognosis. The 5-year relative survival rate was 63% in a recent report from the Netherlands. During 2017, almost 16 400 new cases of tongue cancer, and 2400 deaths are projected to occur due to this cancer in the United StateOral squamous cell carcinoma (OSCC) is the most common malignancy of the head and neck (excluding non-melanoma skin cancer), with more than 300,000 new cases reported annually worldwide[1]. The look for prognostic markers speaks to a proceeding with challenge for biomedical science. A malignancy biomarker might be a particle emitted by a tumor cell or a particular reaction of the body to the nearness of growth. Biomarkers can be utilized for understanding appraisal in various clinical settings, including evaluating the danger of illness and recognizing kind from harmful tissues[2]. Malignancy biomarkers can be characterized in view of the sickness state, including prescient, analysis and visualization biomarkers. A prognostic biomarker illuminates about a probable malignancy result (e.g., general survival, infection free survival, and cause-particular survival) autonomous of treatment got[3]. From the distinguishing proof of a promising biomarker to its clinical use, there is a long pathway including numerous entangled obstacles, for example, evaluating the quantity of patients required for the approval stage and measurable approval, among others[3]. This approval and capability are in charge of connecting the promising biomarker with an organic procedure to clinical endpoints. Considering a few tumor biomarkers have been recommended to anticipate the visualization of OSCC patients, we played out an efficient audit, which is generally acknowledged as a "best quality level" in pharmaceutical in light of confirmation, to distinguish, assess and condense the proof for OSCC revealed markers[4].

OBJECTIVES OF THE STUDY:

The basic aim of the study is to find some important biomarkers which are useful in the diagnosis and treatment of oral tongue squamous cell carcinoma (SCC) among local population of Pakistan.

MATERIAL AND METHODS:

This cross-sectional study was conducted in Mayo Hospital Lahore in August 2017 till May 2018. The data was collected from 100 patients of OSCC. 5.0 cc blood sample was taken from vein. Blood was further processed for the estimation of serum biomarkers i.e Sialic acid, NO, Vita-A, Vit-E and GSH. 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 was collected and analyzed using SPSS version 21.0.

RESULTS:

The data was collected from 100 patients of both genders. The data represents that there is a statistical difference among control group and patients. The data shows all the expected prognostic markers which used for the assessment of OSC in humans. The values of GSH and SOD shows that these are the most important biomarkers for the analysis of OSC in humans. Blood samples shows the clear values of Vit-A, Vit-C, Vit-E, GSH, Catalase, SOD and MDA with the correlation of some micronutrients e.g zinc and iron.

Table 01: Statistical analysis of prognostic biomarkers of OSC

Variables	group	N	Mean	Std. Deviation	Std. Error Mean
Vit_A	control	10	1.97432E2	91.729355	29.007369
	patients	17	7.89106E1	69.624623	16.886451
Vit_C	control	10	2.41350	1.242764	.392996
	patients	17	1.06559	.386902	.093838
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
Zn	control	10	9.71250E1	11.703929	3.701107
	patients	16	6.16988E1	21.376463	5.344116
Fe	control	10	8.89530E1	3.331970	1.053661
	patients	16	9.10994E1	14.039887	3.509972

DISCUSSION:

Lipid peroxidation relies on the level of Lipid Hydro peroxides (LHP) and MDA. In this examination, our test brings about oral tumor patients indicated expanded levels of MDA which may ascribed to expanded design or deficient leeway of free radicals by the phone cancer prevention agents[7-8]. Beforehand, it was hypothised that expanded levels of lipid peroxidation was the consequence of extensive measure of free radicals deliver by the tumor cells and demonstrate a solid association with free radical movement and danger[8].

Moreover, non-protein thiol, for example, GSH in conjugation with glutathione-S-transferase (GST) and glutathione peroxidase (GPx), assumes a vital part in cautious component of cells against ROS. In our investigation a noteworthy diminishment of plasma GSH watched reflects improved ace oxidant level of the cells and communicate with the expanded lipid peroxides in the patients with oral tumor[9]. The harming poisonous impacts of free radicals is forestalled by antioxidative catalysts, for example, SOD, CAT and GPx assume vital part inside the cell by specifically responding with oxygen free radicals[10]. GPx is a selenium subordinate antioxidative chemical which complete the corruption of both H_2O_2 and LHP by utilizing GSH because of which intracellular DNA harm is restrained in charge of carcinogenesis. Already, oxidative harm to the cell layer has been accounted for to inactivate GPx[11].

CONCLUSION:

It is concluded that GSH, MDA and SOD are the important diagnostic biomarkers in the assessment of OSSC.

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