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Research Article

**EVALUATION OF LEVEL OF MICRO AND MACRO  
NUTRIENTS IN THE BRAIN TUMOR PATIENTS**<sup>1</sup>Dr. Umar Mahmood, <sup>2</sup>Dr. Adeel Anwar, <sup>3</sup>Dr. Abdur Rahman Ishtiaq Gondal<sup>1</sup>Medical Officer at THQ Hospital Gujar Khan, Rawalpindi<sup>2</sup>Medical Officer at THQ Hospital Gujar Khan, Rawalpindi<sup>3</sup>Medical Officer at BHU 124/NB Tehsil Sillanwali, Sargodha**Abstract:**

**Introduction:** According to estimates from the International Agency for Research on Cancer (IARC), there were 14.1 million new cancer cases in 2012 worldwide, of which 8 million occurred in economically developing countries, which contain about 82% of the world's population.

**Objectives of the study:** This study was designed to evaluate the status of macronutrients such as Ca and Fe and micronutrients such as Cu, Zn and Se in brain tumor patients.

**Methodology of the study:** The study was conducted at THQ Hospital Gujar Khan, Rawalpindi, Pakistan during 2016 to 2017. This study was done with the collaboration of AKU hospital and SKM hospital laboratory. The patient who were come at hospital for treatment, selected for this study.

**Results:** The analysis of blood micro and macro nutrients shows that there is a huge difference in control group and patients.

**Conclusion:** It is concluded that quality of life is very much important in brain tumor therapies. The level of nutrients become decreases due to tumor that's why it is necessary to maintain the normal values of nutrients. So that patient may survive better quality life.

**Key words:** Brain, Micro nutrients, Macro nutrients

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**INTRODUCTION:**

According to estimates from the International Agency for Research on Cancer (IARC), there were 14.1 million new cancer cases in 2012 worldwide, of which 8 million occurred in economically developing countries, which contain about 82% of the world's population [1]. The most widely recognized kinds of danger incorporate colorectal malignancy, lung disease, and, contingent upon sexual orientation, bosom or prostate tumor [2]. The relating gauges for add up to growth passings in 2012 were 8.2 million. By 2030, the worldwide weight is relied upon to develop to 21.7 million new tumor cases and 13 million malignancy passings just because of the development and maturing of the populace [3]. Be that as it may, the evaluated future malignancy weight will most likely be extensively bigger because of the reception of ways of life that are known to expand tumor hazard, for example, less than stellar eating routine, physical inertia, and smoking. Growths identified with these variables, for example, bosom, lung, and colorectal tumors, are as of now on the ascent in financially progressing nations [4].

Alexandra, (2000) talked about in his paper the rate of cerebrum tumors is expanding quickly, especially in the more seasoned populace [5]. Advances in atomic science help to clarify contrasts in biologic conduct and reaction to treatment of mind tumors in the elderly contrasted and more youthful patients. The quantity of elderly patients who want and get treatment for mind tumors and are incorporated into clinical trials is expanding. This article surveys the writing on the study of disease transmission, clinical perspectives, and treatment of mind tumors, with accentuation on the more established patient populace [6]. The expanded rate of cerebrum tumors in the elderly is primarily because of the expanding number of individuals who contain the more established populace. Age and execution status are critical autonomous prognostic pointers, together with tumor histology. Medical procedure, radiation treatment, and chemotherapy can profit elderly patients with mind tumors with great histologies, tumor area, and great execution status [7]. The reaction rates to accessible treatments are less great than in more youthful patients, and just few elderly patients are enlisted in clinical investigations tending to new treatment modalities. Cerebrum tumors in the elderly have particular attributes that decide their

biologic conduct and reaction to treatment. There is a requirement for clinical investigations intended for treatment of cerebrum tumors in more established patients, and prerequisites for restoration and emotionally supportive networks for the elderly should be tended to [8].

**Objectives of the study**

This study was designed to evaluate the status of macronutrients such as Ca and Fe and micronutrients such as Cu, Zn and Se in brain tumor patients.

**METHODOLOGY OF THE STUDY:**

The study was conducted at THQ Hospital Gujar Khan, Rawalpindi, Pakistan during 2016 to 2017. This study was done with the collaboration of AKU hospital and SKM hospital laboratory. The patient who were come at hospital for treatment, selected for this study. The confirmed cases of brain tumor were selected for this course of study. This study was conducted by the approval of ethical committee and with the permission of patients. We draw the 5cc blood sample of patients for the analysis of micronutrients in brain tumor patients. Commercially available kits were used for the analysis of micronutrients in the blood of patients. 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**

Student's t-test was performed to evaluate the differences in roughness between group P and S. Two-way ANOVA was performed to study the contributions. A chi-square test was used to examine the difference in the distribution of the fracture modes (SPSS 19.0 for Windows, SPSS Inc., USA).

**RESULTS:**

The analysis of blood micro and macro nutrients shows that there is a huge difference in control group and patients. The level of nutrients is decreases in patients as compared to control and healthy group. The low levels of nutrients shows that it leads to many deformities also. With so many things going on while battling a brain tumor, it's challenging to pay attention to nutrition.

**Table 01: Statistical analysis of micro and macro nutrients of patients and control group**

Group Statistics					
	group	N	Mean	Std. Deviation	Std. Error Mean
Vit_A	control	10	1.9743	91.729355	29.007369
	patients	17	7.89106	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
Zn	control	10	9.71250	11.703929	3.701107
	patients	16	6.16988	21.376463	5.344116
Fe	control	10	8.89530E1	3.331970	1.053661
	patients	16	9.10994E1	14.039887	3.509972
Mn	control	10	6.40500	1.709121	.540472
	patients	16	5.20250	1.391165	.347791
Se	control	10	6.55662E1	20.104143	6.357488
	patients	16	6.65813	1.943839	.485960
Cu	control	10	7.72700	3.199792	1.011863
	patients	16	8.75406E1	19.200278	4.800070

**DISCUSSION:**

It is the highly invasive nature of malignant brain tumors that makes them difficult to manage using most conventional therapies. Although restricted ketogenic diets can be effective in managing invasive brain cancer in children and adults, few studies have evaluated the therapeutic effect of calorie or dietary restriction on invasive brain cancer in mice [9,10].

Several issues can complicate attempts to implement metabolic diet therapy for brain cancer management in patients [11]. Availability of a drug that would mimic the global therapeutic effects of dietary energy restriction would certainly be the easiest way to implement the therapy. However, no drugs are known that can simultaneously lower glucose levels while elevating ketones in the absence of some form of calorie restriction, though the recently described ketone ester diets could be an exception [12].

The overall symptom burden and disability for glioma patients are significant, especially in those with high-grade or recurrent disease [13]. Malignant glioma patients score significantly lower in all domains of functioning compared to age-matched and sex-matched healthy controls and have lower social functioning and more problems with vision, motor functions, communication, headaches, and seizures than do matched, non-small-cell lung cancer patients [14]. Patients with high-grade tumors do not appear to differ in QOL between those with grade III and grade IV tumors, although perceived QOL in patients with grade III tumors may be better. The difference in QOL may be less dependent on the grade of tumor and more dependent on whether the

tumor is stable or progressive. For example, one study found that patients with malignant gliomas with low QOL at baseline tended to deteriorate over time [15].

Several exciting avenues of research remain in the vastly unexplored area of QOL in brain tumor patients [16]. Research needs to be performed on validation of easy-to-use questionnaires and cognitive tests with incorporation of these instruments into ongoing clinical trials. Moreover, a better description of longitudinal QOL and exploration into specific causes of symptoms and survivorship is necessary [17]. In addition, the significance of other nontraditional patient factors that contribute to QOL, such as caregiver, spiritual, and financial aspects of a patient's life, need to be better explored. While funding may be limited to pursue these primary QOL research goals, efforts should be made to incorporate QOL research as secondary end points into ongoing therapy trials [18].

**CONCLUSION:**

It is concluded that quality of life is very much important in brain tumor therapies. The level of nutrients become decreases due to tumor that's why it is necessary to maintain the normal values of nutrients. So that patient may survive better quality life.

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