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ANALYSIS OF NOVEL BIOMARKERS TO MANAGE OROPHARYNGEAL CARCINOMA AFTER RADIOTHERAPY AMONG LOCAL POPULATION OF PAKISTAN

Naeem Ahmad[1], Rifat Noor[2], Muhammad Abubakar[3]

[1]Tehsil Headquarter Hospital Kamalia, [2]Bahawalpur Victoria Hospital, [3]District Headquarter Hospital Lodhran.

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Abstract:

Introduction: *Oropharyngeal cancers include cancers of the base of the tongue, tonsil, soft palate, and posterior pharyngeal wall. Many oropharyngeal cancers are difficult to see, even when using a tongue blade and light source.*

Aim of the study*: The basic aim of the study is to find the novel biomarkers which are used to identify the oral cancer before and after treatment of radiotherapy.*

Methodology of the study*: This cross sectional study was conducted in THQ hospital Kamalia during December 2018 to August 2019. Those oral cancer patients who receiving radiotherapy were selected to study the Sialic Acid status in the diseased condition. 5.0 ml saliva sample was taken for the analysis. Saliva was further processed for the estimation of Sialic Acid. Commercially available enzymatic kits of Randox were used.*

Results: *According to our data levels of sialic acid become increases in tongue cancer patients receiving radiotherapy. The levels of sialic acid become highly decreases in oral cancer after radiotherapy.*

Conclusion: *Therfore sialic acid is considerd to be as a dignostic tool in case of tongue cancer patients who recived radiotherapy.*

Corresponding author:

Naeem Ahmad,

Tehsil Headquarter Hospital Kamalia

QR code

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INTRODUCTION:

The terms 'oral and oropharyngeal cancer include a diverse group of tumors arising from the head and neck, including cancers of the buccal mucosa, hard and soft palate, tongue, and cancers of the oropharyngeal sub-sites such as tonsils, posterior pharyngeal wall and tongue base [1]. These tumors as of now speak to the 6th most normal disease around the world. In Ireland, a normal of 349 instances of oral or oropharyngeal squamous cell carcinoma were enlisted yearly in the vicinity of 2010 and 2013. The five-year survival rate for these patients was accounted for to be 55% out of 2011 [2]. Moreover, an investigation of oral and oropharyngeal growths in Ireland recognized that the analysis and treatment of cutting edge oral and oropharyngeal tumor is putting a gigantic weight on an as of now overburdened social insurance framework. In the vicinity of 2003 and 2011, 37% of patients were determined to have arrange IV sickness, contrasted with 27% determined to have organize IV illness between 1994 to 2002 [3].

At the minuscule level, the injuries demonstrate fluctuating degrees of epithelial dysplasia, from gentle to extreme. Long haul thinks about have demonstrated that the general danger of harmful change of all evaluations of epithelial dysplasia has been accounted for to be around 16%. Nonetheless, it must be noticed that not all instances of genuine squamous cell carcinoma give these pre-threatening changes [4]. Likewise, without these unmistakable morphological changes, white light endoscopy has restricted use for pre-dangerous injuries inferable from their level appearance. Provoke careful extraction of these premalignant sores could anticipate movement to SCC. This speaks to the single most prominent determinant of long haul understanding survival and successful treatment. In this way, obviously a novel, non-intrusive strategy for distinguishing the consecutive hereditary adjustments at the most punctual conceivable time purpose of ailment improvement is justified [5]. Oropharyngeal cancers include cancers of the base of the tongue, tonsil, soft palate, and posterior pharyngeal wall. Many oropharyngeal cancers are difficult to see, even when using a tongue blade and light source [6].

Objectives of the study:

The basic aim of the study is to find the novel biomarkers which are used to identify the oral cancer before and after treatment of radiotherapy.

Methodology of the study:

This cross sectional study was conducted in THQ hospital Kamalia during December 2018 to August 2019. Those oral cancer patients who receiving radiotherapy were selected to study the Sialic Acid status in the diseased condition.

Biochemical analysis:

5.0 ml saliva sample was taken for the analysis. Saliva was further processed for the estimation of Sialic Acid. Commercially available enzymatic kits of Randox were used. In this study we excluded the patients with associated illness like Myocardial Infarction, Hypertension, Renal, Hepatic, Pancreatic and Pulmonary diseases were excluded from the study.

Statistical analysis:

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:

Table 01: Hb levels of oral cancer patients with the comparison of control group

Oral cancer patients	CONTROL	Hb(gm/dl)			
		MALES (n=04)		FEMALES (n=00)	
		BEFORE	AFTER	BEFORE	AFTER
	12-16gm/dl				
R1	0.00	8.90±0.00	7.99±0.00	0.00±0.00	0.00±0.00
R2	0.00	8.08±0.52	7.30±0.79	0.00±0.00	0.00±0.00
R1+C	0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
R2+C	0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
C	0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Total	0.00	8.29±0.58	7.47±0.73	0.00±0.00	0.00±0.00

R1=Received Radio Therapy Single Time
R2=Received Radio Therapy Two Times
R1+C=Received Radio Therapy Single Time + Chemotherapy

R2=Received Radio Therapy Two Times + Chemotherapy
C=Only Received Chemotherapy

The data explaining in the above table shows that levels of haemoglobin become decreases in tongue cancer patients who received radiotherapy. The mean value of Hb is decreases from 8.29±0.58 to 7.47±0.73.

Table 02: Levels of sialic Acid in saliva of oral cancer patients

Oral Cancer	CONTROL	SIA (µg/dl)			
		MALES (n=04)		FEMALES (n=00)	
		BEFORE	AFTER	BEFORE	AFTER
	0.37				
R1	0.00	1.24±0.00	0.09±0.00	0.00±0.00	0.00±0.00
R2	0.00	1.04±0.75	0.12±0.06	0.00±0.00	0.00±0.00
R1+C	0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
R2+C	0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
C	0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Total	0.37	1.09±0.62	0.11±0.05	0.00±0.00	0.00±0.00

Means±SD:
According to our data levels of sialic acid become increases in tongue cancer patients receiving radiotherapy. The levels of sialic acid become highly decreases in tounge cancer after radiotherapy. Therfore sialic acid is considerd to be as a dignostic tool in case of tongue cancer patients who recived radiotherapy.

DISCUSSION:

Cancer is fundamentally an occasion start from gene level and finally leads to the DNA damage. Numerous factors play important role in carcinogenesis such as chemicals, viruses, irradiation and genetic composition of an individual. Whereas, ROS and RNS are two important factors which leads to DNA damage. The extent of DNA damage depends not only on ROS/RNS levels but also on the body's resistance mechanisms alongside a variety of cellular antioxidants [7].

The oral cavity and oropharynx are important areas that should be carefully inspected and palpated, particularly in tobacco and alcohol users, to evaluate for oral and oropharyngeal cancer[11]. A red or white patch or a change in color, texture, size, contour, mobility, or function of intraoral, perioral, or extraoral tissue should arouse suspicion of the presence of malignant or premalignant lesions in these regions. Comprehensive head and neck examinations should be part of all medical and dental examinations [8]. Primary care physicians are well suited to providing head and neck examinations and to screening for the presence of suspicious lesions. Referral for biopsy and further diagnosis might be indicated, depending on the experience of examining physicians. In the future, examination and screening for oral and oropharyngeal cancers will likely include novel technologies aimed at detecting molecular markers of premalignant and malignant changes [9].

In a similar study, the activities of GSH-Px and SOD and the levels of copper, zinc, and malondialdehyde were determined and compared with healthy subjects acting as controls. The MDA levels were higher and the antioxidant activity and Zn levels lower in the prostate cancer groups than in the healthy control. These results confirm the value of therapies aimed at increasing the antioxidant capacity and encourage the use of plasma and erythrocyte Zn levels in the differential diagnosis of BPO (Benign prostatic obstruction) and prostate cancer [10].

CONCLUSION:

It is concluded that sialic acid plays an important role in the detection and management of oral cancers.

REFERENCES:

1. Ries LAG, Kosary CL, Hankey BF, Miller BA, Clegg L, Edwards BK, editors. SEER cancer statistics review, 1973–1996. Bethesda, MD: National Cancer Institute; 1999.
2. Downer MC. Patterns of disease and treatment and their implications for dental health services research. Community Dent Health. 1993;10(Suppl 2):39–46. [
3. National Cancer Institute. Surveillance, Epidemiology, and End Results program public-use data, 1973–1998. Rockville, MD: National Cancer Institute, Division of Cancer Control and Population Sciences, Surveillance Research Program, Cancer Statistics Branch; 2001.

4. Schantz SP, Spitz MR, Hsu TC. Mutagen sensitivity in patients with head and neck cancers: a biologic marker for risk of multiple primary malignancies. J Natl Cancer Inst. 1990;82(22):1773–5.
5. Regezi JA, Dekker NP, Ramos DM, Li X, Macabeo-Ong M, Jordan RC. Proliferation and invasion factors in HIV-associated dysplastic and nondysplastic oral warts and in oral squamous cell carcinoma: an immunohistochemical and RT-PCR evaluation. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2002;94(6):724–31.
6. Silverman S, Jr, Gorsky M, Lozada F. Oral leukoplakia and malignant transformation. A follow-up study of 257 patients. Cancer. 1984;53(3):563–8.
7. Jullien JA, Downer MC, Speight PM, Zakrzewska JM. Evaluation of health care workers' accuracy in recognizing oral cancer and pre-cancer. Int Dent J. 1996;46(4):334–9.
8. Nagao T, Ikeda N, Fukano H, Miyazaki H, Yano M, Warnakulasuriya S. Outcome following a population screening programme for oral cancer and precancer in Japan. Oral Oncol. 2000;36(4):340–6.
9. Sankaranarayanan R, Ramadas K, Thomas G, Muwonge R, Thara S, Mathew B, et al. Effect of screening on oral cancer mortality in Kerala, India: a cluster-randomised controlled trial. Lancet. 2005;365(9475):1927–33.
10. Yu BK, Kuo BI, Yen MS, Twu NF, Lai CR, Chen PJ, et al. Improved early detection of cervical intraepithelial lesions by combination of conventional Pap smear and speculoscopy. Eur J Gynaecol Oncol. 2003;24(6):495–9.