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Editorial

Biomarkers in Oral Cancer: How far we have reached in The Journey?

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Oral Cancer traditionally has been defined as squamous cell carcinoma of lip, oral cavity and oropharynx. With increasing incidence due to a plethora of causes, oral cancer, being the 6th most common malignancy in the world, is giving an alarm because of the fact that despite numerous attempts and advances in the early diagnosis as well as treatment, the 5-year survival rates for oral cancer has stuck to approximately 50% in the last 5 decades. This poor prognosis of oral cancer has been attributed to a number of reasons, the most significant being the development of multiple primary tumors in patients of oral cancer, a phenomenon that has been well covered under the heading of the concept of field cancerization and the second most important reason being the advanced extent of the disease process at the time of its first reporting for diagnosis and treatment with over 60% of the patients presenting in stages III and IV at the time of their first diagnosis. Even more intriguing is the fact that unlike other body cancers, oral cancer is a multistage phenomenon that evolves through a series of changes in the mucosa commutated as potentially malignant epithelial lesions that can be easily screened at the earliest under strict clinical criterion of a well-planned screening program, if given care to, overruling the fact that oral mucosa is the only mucosa in the body which is easily accessible to direct visual and tactile examinations, if given care to. Such early diagnosis is definitely helpful in the introduction of interventional measures that contribute a great deal in reducing the mortality as well as the morbidity associated with the deadly oral cancer.

An early diagnosis of oral cancer has always remained the vision of the people who have worked actively in this arena of disease process and have worked day and night for and seen oral cancer patients struggling for their survival eventually culminating in death if not an increase morbidity that had made their lives even more miserable than if they were dead. For this, a thorough mucosal examination should form a part of a routine oral examination. Conventional oral examination using normal incandescent light has long been the mainstay of oral cancer screening however despite its widespread utility and practice, controversies have cropped-in in the recent past due to various reasons as substantiated by numerous studies conducted from time to time, one of the most important reasons amongst them being the failure of the procedure to give an idea about the possible dysplastic changes that might be there in an almost normal looking, asymptomatic mucosa even if the patient is in a high-risk group and the epithelial changes have already set-in without evidence of distinct clinically perceptible changes.

An almost similar reason is cited for the possible search of such markers in the body which can contribute towards an early diagnosis of this deadly disease process even when the corresponding clinical or, radiographic changes have not yet happened and the indication at least makes the patient go for a thorough examination for a possible onset of the malignant process in the body. Tumor markers are such substances which are present in the body in blood circulation, body cavity secretions, cell membranes and cell cytosol which are either supposed to be released-in by the malignant cells per-se or, are produced by the host in response to the onset of the malignant process in the body. Oncogenes, tumor suppressor genes, abnormal cell proliferation and angiogenic markers and under-or, over-expression of markers associated with cell adhesion, are all such markers which can be detected in the body to indicate the herald of the malignant process in the body. Since the introduction of molecular techniques, tumor markers have been in vogue for the detection of malignant changes in the body well before the actual anatomic and clinical changes become noticeable. The use of such biomarkers as adjuncts to routine histopathological examinations may also help in tumor prognostication, response to treatment and an effective treatment plan. A more aggressive tumor behaviour and worsening prognosis are added signals that can be picked-up for changing the line of treatment with the use of such biomarkers.

Not only the genes involved in oncogenesis, or, abnormal cell proliferation markers like Ki-67 antigen or, markers of apoptosis like Bax, Bad and Bcl-2 but also the markers of angiogenesis, including IL-8, vascular endothelial growth factor, basic fibroblast growth factor and tumor necrosis factor-alpha, to markers associated with cell adhesion including E-cadherins, laminin and tumor cell transmembrane proteoglycan syndecans, markers of metabolic changes including the oxidative injuries to the cells and the increase in the concentration of local hormones or, autacoids secreted by the cancer cells or, by the host in response to the cancerous process in the body, too can be used as important biomarkers which if not directly contributive to signal the onset or, progression of disease process, are helpful in assessing the response to treatment and tumor prognostication.

To conclude, despite tremendous progress that has been made in the attempts towards an early diagnosis of oral cancer and potentially malignant epithelial lesions associated with the oral mucosa, a long way is yet to go to come-upto and arrive-at the quests generated by this deadly disease process eventually turning a helping hand in reducing

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the bane of this disorder which is still mysterious in its approach and even more worrisome of being a disorder that is increasing its menace due to varied reasons and is expected to take a heavy toll of lives and leave life-incapacitating morbidities in the rest in near future if such patients survive.

I am happy that the journal, Austin Biomarkers and Diagnosis, will ignite research done in this particular arena bringing forth the papers of high quality work done in relation to these wide-arrayed biomarkers that can possibly be used to improve cancer diagnostics as well as provide an insight into its prognostication decreasing the dreaded sequelae associated with these deadly disorders.

Acknowledgement

I pay my sincere acknowledgment to all those people who are struggling to find answers to this puzzle of cancer and have devoted their lives towards the well-being of the sufferers of this deadly disease process.

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