"A COMPARATIVE ANALYSIS OF SELECTIVE AEROBIC AND ANAEROBIC ORAL MICROORGANISMS IN ORAL SQUAMOUS CELL CARCINOMA PATIENTS AT THE TIME OF DIAGNOSIS AND DURING RADIOTHERAPY"

by

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Dissertation Submitted to the
Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore

In partial fulfillment
of the requirements for the degree of

MASTER OF DENTAL SURGERY
in

ORAL & MAXILLOFACIAL PATHOLOGY & MICROBIOLOGY

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DHARWAD

APRIL 2011

ABSTRACT

Background & Objectives

The toxicities and adverse effects of treatment modalities practiced for Head and neck cancers are well known. The change in the oral flora is one of the well understood phenomenon that can precipitate due to radiation. This abnormal flora can cause significant sepsis often leading to half of the cancer deaths. Also, this colonisation leads to exacerbation of radiation induced mucositis and infections during and after radiotherapy.

The objective of the present study was to qualitatively and quantitatively assess the aerobic and anaerobic oral microbial flora in saliva of oral squamous cell carcinoma (OSCC) patients at the time of diagnosis and during radiatiotherapy.

Methods

Unstimulated whole saliva samples were collected from OSCC patients at the time of diagnosis (Group III), after surgery but before radiotherapy (Group IV), during mid-stage of radiotherapy (Group V) and during end-stage of radiotherapy (group VI). Age and sex matched controls were included without tobacco chewing habit (Group I) and with tobacco chewing habit (Group II) separately.

Collected saliva samples were transported in a suitable transport media for microbiological analysis. Saliva samples were then inoculated in culture media for aerobic and anaerobic microbial flora and incubated accordingly. Identification of individual microorganism was done by standard tests for microbial identification. The frequency of isolation (FOI) and colony forming units (CFU) of various organisms identified were subjected to Chi-square test, Z-test and Marscuilo analysis appropriately.

Results

The FOI and CFU of Aerobes, anaerobes, yeasts, coliforms and gram negative anaerobic bacilli significantly differed between the studied groups (p value is variable in each category).

Interpretation & Conclusion

Significant change occurs in oral microbial ecosystem with decrease in commensals and increase in opportunistic pathogens and transient colonisers. These shifts should be borne in mind while the patient is subjected to radiotherapy and treated accordingly with suitable antimicrobials so as to reduce the co-morbidity associated with treatment modalities of OSCC.

Keywords: oral squamous cell carcinoma; radiotherapy; oral microflora.