Aims & Objectives

When your desires are strong enough, you will appear to possess superhuman powers to achieve - Napoleon Hill

AIMS: The aims of the investigation were (1) To study glycosylation changes and MMPs from saliva and blood in patients with oral precancerous conditions (OPC) and oral cancer patients and to assess utility of salivary diagnostic approach in early detection, prognosis and disease monitoring of oral cancer patients. (2) To correlate glycosylation changes with associated molecular markers including pEGFR, MMPs, E-cadherin and c-Jun in order to evaluate its role in progression of oral cancer.

OBJECTIVES: The major objectives of the study were as follows:

Objective 1: To study glycoprotein electrophoretic profile from serum in controls, patients with OPC and oral cancer patients and to correlate with clinico-pathological parameters.

Objective 2: To compare serum and salivary sialylation changes between controls, patients with OPC, oral cancer patients and post treatment follow-ups and to assess the correlation with clinico-pathological parameters.

- **2.1:** Comparison between serum and salivary total sialic acid (TSA) levels.
- **2.2**: Comparison of serum and salivary sialidase activities.
- **2.3:** Evaluation of serum and salivary expression of α-2,3 and α-2,6 sialoproteins.
- **2.4:** Estimation of serum and salivary α-2,3 and α-2,6 sialyltransferase (ST) activities.

Objective 3: To compare serum and salivary fucosylation changes in controls, patients with OPC, oral cancer patients and post treatment follow-ups and to correlate with clinico-pathological parameters.

- **3.1:** Evaluation of serum and salivary expression of fucoproteins.
- **3.2:** Estimation of serum and salivary α-L-fucosidase activity.

Objective 4: To study mRNA expression of glycosyltransferases (*ST3GAL1, FUT3, FUT5* and *FUT6*) in malignant and adjacent normal tissues of oral cancer patients.

Objective 5: To study glycosylation associated molecular markers in oral cancer and to correlate with clinico-pathological parameters.

- **5.1:** To study plasma and salivary levels of gelatinases (MMPs) in controls, patients with OPC and oral cancer patients.
- **5.2:** To evaluate *ECAD* mRNA and E-cadherin protein levels in malignant and adjacent normal tissues of oral cancer patients.
- **5.3:** To assess *CJUN* mRNA and c-Jun protein levels in malignant and adjacent normal tissues of oral cancer patients.
- **5.4:** To study the expression of pEGFR from malignant and adjacent normal tissues of oral cancer patients.

Objective 6: To study the correlation of glycosylation, EGFR, E-cadherin, MMP-2, MMP-9 and c-Jun in order to study its role in oral cancer progression.