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Original Article

Evaluating the levels of D-dimer as a primary marker in oral cancers using immunoturbidimetric assay: The original research

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ABSTRACT

Objectives: Oral cancer is major health threat; with 90% mortality and ranks sixth among worldwide cancers. So to overcome this mortality; newer bio-markers are explored and one of such biomarker is D-dimer, which is end product of fibrinogen formed by plasmin. The raised levels of D-dimer play significant role in proliferation and progress of cancer cells. In cancers D-dimer is formed by dual action, where UPA (Urokinase type Plasminogen Activator) and Tissue factor play important role simultaneously. To understand correlation between D- dimer and oral cancers, by immunoturbidimetry; quantitative assay.

Material and Methods: After obtaining consents of patients and Institutional ethical clearance, we randomly selected; age and sex matched; 216 samples. Further these samples were subdivides as oral cancer group and control group, consisting 108 samples in each group respectively.

Results: Statistical analysis was done; using SPSS version 20, unpaired -T test, and one way ANOVA were applied. Plasma D-dimer levels were; 497.32±872.28µl/ml and 165.30±150.43 28µl/ml, among cancer and control groups respectively, ($P \leq 0.0001$), which was statistically highly significant.

Conclusion: D-dimer is altered during carcinogenesis by activation of UPA and Tissue factors, and this distinguishes form routine levels of D-dimer. This suggests that, cancer cell biology is greatly affected by D-dimer levels during growth and spread of cancers. So raised levels of D-dimer can be considered during interventions of cancers, and incorporated as a biomarker. However for its scientific applications; there is need of further study, with collaborative approach and larger samples, to restrict cancer related mortalities.

Keywords: Oral cancer, D-dimer, Metastasis, Biomarker

INTRODUCTION

There is a long history of blood cells and growth of cancer, where angiogenic process plays crucial role in growth and proliferation of cancers. The processes called angiogenic switch, are a part of neovascularization against the stimulus by cancer cells from microenvironment or by precursors of bone marrow.[1,2]

The association between hematogenous factors and cancers was studied by Armand Trousseau, to explain alterations in blood leading to thrombophlebitis, with this, he introduced "Trousseau's syndrome."[3]