RESEARCH ARTICLE

The Correlation Between Oral Squamous Cell Carcinoma and Intercellular Adhesion Molecule 1 (ICAM-1), fox and DNA Methyltransferase 3 Beta (DNMT3B)

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ABSTRACT

Expression of Intercellular adhesion molecule 1 (ICAM-1), fox and DNA Methyltransferase 3 Beta (DNMT3B) in the case of oral squamous cell carcinoma The immunoexpression of DNMT3B marker (DNA Methyltransferase 3 Beta) and ICAM-1 is a Protein marker gene Coding, Intercellular adhesion molecules and cell adhesion molecule-1 vascular.

The three markers expressed in the cell of oral squamous cell carcinoma and the expression calculated as Negative, Minimal, Moderate and Strong measured by technique IHC regarding the intensity of the expression positively. Positive expressions of ICAM-1 were observed in 31 out of 33 samples (97.1%), and of fox and DNMT3B, in 25 out of 33 positively expressed samples (77.9%). The three expressed markers ICAM-1, fox, and DNMT3B, show a high difference (Probability value $P < 0.01$) in the immunohistochemical expression between the three applied marker cases compared with control cases. Our result displays correlations between the ICAM-1, fox, and DNMT3B markers in 33 cases analysis. According to the Pearson correlation, there was a highly significant correlation between ICAM-1, fox, and DNMT3B ($p < 0.05$), and also showed a significant correlation between the three subjected marker and oral squamous cell carcinoma ($p < 0.05$), Which defined as two variables divided the covariance by the product of their standard deviations.

Keywords: DNMT3B, Oral cancer, Oral squamous cell carcinoma.

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INTRODUCTION

Oral cancer divided into groups of new tumors may affect any area of the oral hollowed-out area, throat-related areas, and salivary glands.[1] However, this term tends to be used interchangeably with oral scale-like cell cancer (OSCC),[2] representing the most frequent of all oral new tumors. It is guessed number that more than 90% of all new oral tumors are OSCC.[3] The cause made these new tumor dangers, first unnoticed the early stages, and painless at the beginning next may feeling pain.[4] The locations of OSCC may appear on the lips, tongue, and at the floor of the mouth. Some OSCCs arise based on what's seen or what seems obvious usual mucosa, but others are happened before by related to medicine and science obvious premalignant damage to body parts, especially erythroplakia and leukoplakia.[5] The most important etiological factors are different forms of tobacco smoking and chewing.[6] Excess consumption of alcohol and, these previous factors act separately or cooperatingally.[7] Diet not having enough of something in body-healing chemicals or body-damaging chemical searching[9] or missing things is a further factor that makes ready to oral cancer[8] viruses have been involved in crime and neck cancer-causing process, including human harmless wart virus and Epstein-Barr virus (EBV).[9]

The present paper study aims to correlate oral squamous cell carcinoma and ICAM-1, fox, and DNMT3B.

MATERIAL AND METHODS

All 33 tissue-sections of oral squamous cell carcinoma were cut at 5 µm and put over on charged slides positively; sections were stained with immune staining use for anti ICAM-1, fox, and DNMT3B[10] (Abcam, UK). Immunohistochemistry detection was designed based on Abcam instructions manufacture of Science Company (Cambridge) through Mouse HRP/DAB Specific Detection using an immunohistochemistry EXPOSE kit. When dewaxing and rehydration complete, peroxidase activity endogenous and binding were blocked non-specifically through incubation at protein block also at 2% peroxide hydrogen, respectively. Following the heat-mediated steps,

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the antigen was designed with buffer using citrate acidic pH 6 before applying the IHC staining protocol. Following the steps of sequential incubation at 37°C using diluted primary antibodies for only 1hour, Appling at room temperature secondary antibody for 10 minutes following that 10 minutes incubation with HRP Streptavidin for at 37°C. Last steps applying Diaminobenzidinehydrochloride (DAB) was as the chromogen to calculate the activity of peroxidase. Counter-stained applied for 30 seconds for oral squamous cell carcinoma sections than with Mayer's hematoxylin, dehydrated then mounting.[11,12]

The color of sating represents positive scoring, but the negative analysis is represented through the absence of immunostaining. The scoring system in the present analysis was applied using a light microscope and count at least five fields under the power (400X).[13]

Statistical Analysis

The values of expression statically analyzed using the SAS program computer version 17.9. the significant results have been done, based on probability value ≥ 0.05 and 0.001.[14]

RESULTS AND DISSCUTION

Expression of ICAM-1, fox and DNMT3B in the case of oral squamous cell carcinoma:

The immune-expression of DNMT3B marker (DNA Methyltransferase 3 Beta) and of ICAM-1 is a Protein marker gene coding, intercellular adhesion molecules, and cell adhesion molecule-1 vascular.

The three markers expressed in the cell of oral squamous cell carcinoma and the expression calculated as negative, minimal, moderate, and strong measured by technique IHC regarding the intensity of the expression positively. Out of all 33 samples, positive expressions of the ICAM-1 were observed in 31 samples (97.1%), and of fox and DNMT3B, in 25 samples (77.9%). As display in the Table 1 that shows analysis statistically of the three expressed marker ICAM-1, fox, and DNMT3B, show a high difference (Probability value $P < 0.01$) in the immunohistochemical expression between the three applied marker cases when compared with control cases. The Figure (1,2,3) shows the expression of ICAM-1, fox, and DNMT3Bin oral squamous cell carcinoma stained by IHC, brown stained cytoplasm indicated positive ICAM-1, fox and DNMT3B expression and blue stained cytoplasm

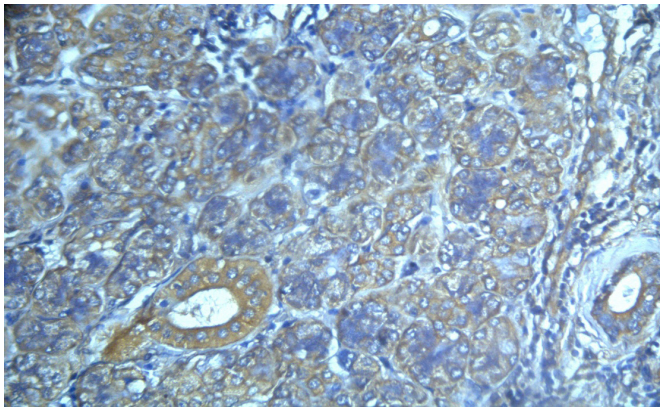

Figure 1: ICAM-1staining using Immunohistochemical in oral squamous cell carcinoma tissues sections using peroxidase/ DAB (brown) blue heamatoxyline (400X) counterstained.

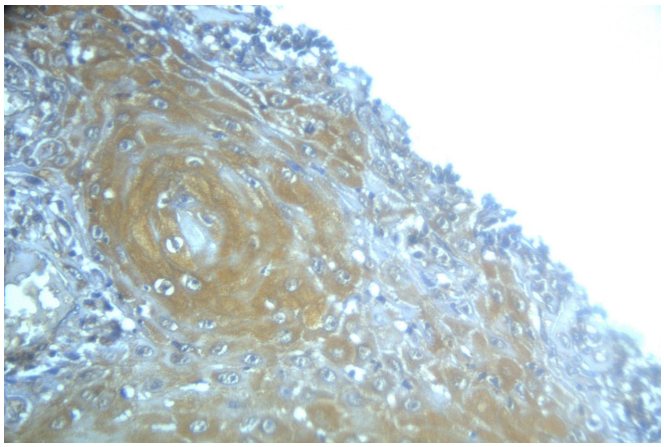

Figure 2: Fox staining using Immunohistochemical in oral squamous cell carcinoma tissues sections using peroxidase/ DAB (brown) blue heamatoxyline (400X) counterstained.

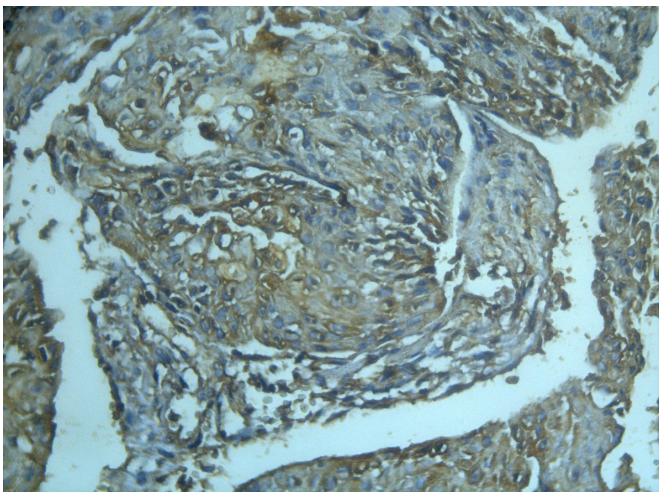

Figure 3: DNMT3B staining using Immunohistochemical in oral squamous cell carcinoma tissues sections using peroxidase/ DAB (brown) blue heamatoxyline (400X) counterstained.

Table 1: Immunohistochemical of ICAM-1, fox and DNMT3B Expression in oral squamous cell carcinoma tissues.

Scoring Marker	*Negative*	*Minimal*	*Moderate*	*Strong*
ICAM-1	18(62.10%) D	7(33.84%)A	7(33.84%)A	1(5.26%) C
fox	10(32.25%)A	5(16.12%)D	5(16.12%)D	5(16.12%)D
DNMT3B.	10(32.25%)A	5(16.12%)D	5(16.12%)D	5(16.12%)D
Control	Not expressed(0).			

**P < 0.05

Table 2: the correlations between the three ICAM-1, fox, and DNMT3B IHC markers in the oral squamous cell carcinoma.

Marker		*ICAM-1*	*fox*	*DNMT3B.*
	Pearson Correlation	_	0.546	0.678
ICAM-1	Sig. (3-tailed)		0.05	0.589
	Number	33	33	33
	Pearson Correlation	0.432	_	0.085
fox	Sig. (3-tailed)	0.05	_	0.321
	Number	33	33	33
	Pearson Correlation	0.436	0.986	_
DNMT3B.	Sig.(3-tailed)	0.234	0.765	_
	Number	33	33	33

***Probability value<0.05

Table 3: The correlations between the three ICAM-1, fox, and DNMT3B IHC markers in the oral squamous cell carcinoma and grade of cancer**.**

Grade Marker		*1*	*2*
	Pearson Correlation	0.657	0.876
ICAM-1	Sig. (3-tailed)	0.05	0.05
	Number	33	33
	Pearson Correlation	0.653	0.099
fox	Sig. (3-tailed)	0.05	0.05
	Number	33	33
	Pearson Correlation	0.543	0.321
DNMT3B.	Sig.(3-tailed)	0.05	0.05
	Number	33	33

** P < 0.05

indicated no expression for markers in these oral squamous cell carcinoma cells.

Statistical Correlations of all IHC Expression Markers ICAM-1, fox, and DNMT3B in the Case of Oral Squamous Cell Carcinoma using Pearson's Correlation

Our result displays the mode of correlations between the ICAM-1, fox, and DNMT3B markers in the studied 33 cases. Ther analysis, according to the Pearson correlation as precise at Table 2, there was a highly significant correlation between ICAM-1, fox, and DNMT3B (p 0.05), and also showed a significant correlation between the three subjected marker and oral squamous cell carcinoma (p 0.05), which defined as two variables divided the covariance by the product of their standard deviations.

There was a high significant correlation between ICAM-1, fox, and DNMT3B markers monoclonal antibody expression in the present study. These results are following some other studies that appeared a significant correlation between these markers in cancer patients.[9] Our present result agrees with one study[5,6] that reported a positive correlation between the three applied markers ICAM-1, fox, and DNMT3B.

The grading of an oral squamous cell carcinoma depends on the microscopic similarity of the case with normal tissue (control case); Table 3 express the analysis correlation between

Table 4: The correlations between the three ICAM-1, fox, and DNMT3B IHC markers in the oral squamous cell carcinoma and stage of cancer.

Stage marker		*I*	*II*	*III*
	Pearson Correlation	0.567	0.765	0.768
ICAM-1	Sig. (3-tailed)	0.005	0.005	0.059
	Number	33	33	33
	Pearson Correlation	0.531	0.987	0.123
fox	Sig. (3-tailed)	0.005	0.005	0.022
	Number	33	33	33
	Pearson Correlation	0. 768	0.980	0.435
DNMT3B.	Sig.(3-tailed)	0.005	0.005	0.005
	Number	33	33	33

**Probability value<0.001

the three parameters: oral squamous cell carcinoma, markers, and control results show a high correlation between the oral squamous cell carcinoma grading in the subjected marker based on the probability value significant P < 0.05

Our present data result may be related to that oral squamous cell carcinoma increase with the grading of the case.[12]

Statistical Correlations of all IHC Expression Markers ICAM-1, fox, and DNMT3B, in the Case of Oral Squamous Cell Carcinoma using Pearson's Correlation and Staging

Staging of oral squamous cell carcinoma, defined as determining the location and how much cancer in the body Table 4 showanalysisthe relationship between the ICAM-1, fox, and DNMT3B markers and oral squamous cell carcinomastage of the case, and the results show strong positive correlation P < 0.001.

ICAM-1 has a strong relationship while at the same time, the correlations appear weak between the stage of our studied case with the fox and DNMT3B.

There was a trend for higher expression with higher stage of tumor, and more death correlated with advanced-stage oral squamous cell carcinoma at progression. In this study, we can determine the survival times through the correlation expression status. Our present analysis agrees with some similar studies.[13,14]

Expression of marker-based on DNA methylation is related to changes in gene and in human oral squamous cell carcinoma.[15] Generally, the overall ICAM-1, fox, and DNMT3B level is higher in present data studied cases than in usual tissues.[5] However, some cases tend to show increased expression, often hypomethylated.[16] High expression marker may play an important role in human oral squamous cell carcinoma-causing process based on the three mechanisms first DNA cytosine and grading help chemical markers instruction inside of the cell and increase delaminated compare to thymine[17] second staging connected with hyper expressionloss andthe third mechanism ICAM-1, fox and DNMT3B level often happens in CpG copying genetic materials into RiboNA) of clearly particular expression of marker assembly inside of living cell.[18] The expression and strong correlation represented

by enzymes that enable studied markers spatially DNMT3B strongly expressed.[6] It may be related to preference for hemimethylated activity in the nucleus expression, through patterns copies methylation of DNA and RNA.[19] However, some specific markers work to strongly correlation, when studying this type of cancer activity *in vivo*, without any concern, no strong correlation with the specific marker for supporting Ag-AB changed in vitro.[8] Regarding our results, recent studies have shown that applaied markers can interact with DNMT1a and, its associated protein like Rb, and control groups and try to removetiny chemical expression inside of living cellspatially at nucleus and cytoplasm.[20]

CONCLUSION

The study concluded that grading of oral squamous cell carcinoma depends on the microscopic similarity of the case with normal tissue express the analysis correlation between the three parameters: oral squamous cell carcinoma, markers, and control results show a high correlation between the oral squamous cell carcinomagrading in the subjected marker

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