

Podoplanin Expression and Its Correlation with Perineural Invasion in Oral Squamous Cell Carcinoma [†]

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1. Introduction

Perineural invasion (PNI) represents cancer propensity to spread through neuronal pathways and hinders the ability to establish a surgical local control of Oral Squamous Cell Carcinoma (OSCC). Histologic evidence of PNI is a recognized poor prognostic factor related with an high risk of loco-regional recurrence and/or presence of an occult lymphnode metastasis.

Unfortunately, PNI can be evaluated only in surgical specimens of OSCC and not in preoperative incisional biopsies, rendering timely therapeutic planning impossible.

Identification of a pre-operative reliable molecular marker related with presence of PNI may represent an attractive strategy. In this sense, recent studies showed that podoplanin is overexpressed in aggressive tumors and is associated with cervical lymphatic dissemination and poor survival in OSCC [1].

The aim of this study is to evaluate the relationship between Podoplanin altered expression in pre-operative incisional biopsy and presence of PNI in surgical OSCC sample and their prognostic role.

2. Materials and Methods

The cohort of this study consisted of 85 consecutive OSCC patients (average follow-up: 21.46 months). In all cases a pre-operative incisional biopsy for histological assessment and immunohistochemical analysis of Podoplanin was performed. PNI evidence was histologically investigated in all samples after surgical exeresis of OSCC.

3. Results

During follow-up period, 27/85 (31.7%) OSCC patients developed a second neoplastic event and 15/85 (17.7%) patients died due to malignancy.

32/85 (37.7%) OSCC surgical samples showed presence of PNI in surgical sample. In the population study PNI resulted the only independent clinico-pathological variable significantly related with appearance of a loco-regional recurrence and with disease-specific survival.

Podoplanin overexpression was found in 44/85 (51.7%) in pre-operative incisional biopsies.

Multiple Logistic Regression showed that Podoplanin overexpression in incisional biopsy samples is the only pre-operative variable significantly related to presence of PNI, indeed an altered expression of podoplanin was found in 30/32 PNI positive OSCCs with respect to 14/53 PNI negative OSCCs.

4. Conclusions

The present study confirmed and highlighted the prognostic role of PNI in OSCC patients and for the first time demonstrated that a positive expression of Podoplanin in pre-operative biopsy is significantly related with PNI status. Indeed, podoplanin showed high sensitivity and good performances as negative predictive marker for PNI presence and may be helpful for an accurate preoperative risk stratification of patients with OSCC.

Conflicts of Interest: The authors declare no conflict of interest.

Reference

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