Assessment of molecular alterations using the markers p53 and ki-67 in resected margins of Oral Squamous Cell Carcinoma

INTRODUCTION: Oral squamous cell carcinoma (OSCC) is the most common malignant tumour in the oral and maxillofacial regions. p53 acts as an oncogene when mutated. It might be responsible for more than 50% of all relapses in patients with surgically treated oral carcinoma and clean margins. “Over expression” of Ki-67 is seen in the epithelial cells of premalignant and malignant oral lesions. Molecular alterations in the peritumoral tissue may lead to local recurrence or the occurrence of secondary primary tumours in OSCC.

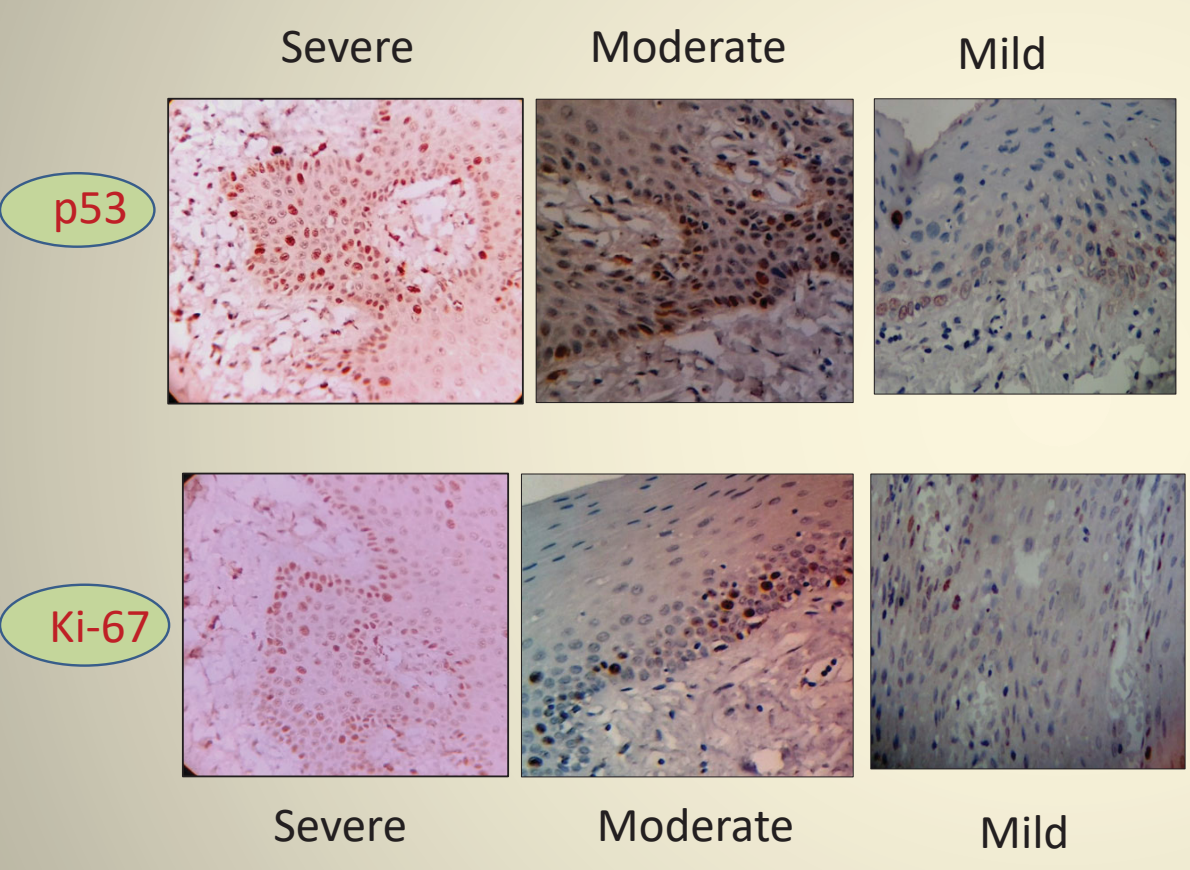
AIM

To assess the molecular alterations using the markers p53 and ki-67 in resected margins of oral squamous cell carcinoma.

METHODOLOGY

Immunohistochemistry was performed on 20 formalin-fixed, paraffin-embedded biopsy specimens of resected margins of OSCC using anti p53 and ki-67 antibody kits.

IMMUNOHISTOCHEMICAL PROFILE



RESULTS: Of the 20 resected OSCC specimen margins, 15 were negative margins and 5 were positive margins. P53 and ki-67 were expressed as a nuclear stain in basal and suprabasal cells. Negative margins showed 86% and 60% of p53 and ki-67 expression respectively. Positive margins showed 40% and 80% of p53 and ki-67 expression respectively. However, the values were not statistically significant (p53: $\chi 2=2.22$, $p=0.136$ and ki-67: $\chi 2=0.073$, $p=0.786$). Histologically, dysplasia was graded, and p53 and ki-67 mild expression was seen more commonly in non-dysplastic epithelium than mild, moderate, and severe dysplastic epithelium. Values were not statistically significant (negative cases $\chi 2=1.54$, $p=0.67$).

DISCUSSION: The present study showed 86% and 60% of p53 and ki-67 expression in negative margins respectively and 40% and 80% of p53 and ki-67 in positive margins respectively. A study by Yi Li et al. (2015) showed expression of p53 and ki-67 decreased from the tumour tissue to the normal mucosa. According to Foco F et al. (2011), 52% of the OSCC showed p53 reactivity, but no statistical association with local recurrence was seen. Marginal epithelium was graded based on dysplasia, and expression of p53 and ki-67 was found more in non-dysplastic epithelium than in mild, moderate, and severe dysplastic epithelium. This difference in expression is probably due to smaller sample size and unequal sample size distribution in each group. These results were consistent with other studies where the expression of p53 marker was found even in morphologically clean margins (Foco F et al. 2012).

CONCLUSION:p53 and ki-67 expression can show reactivity irrespective of grades of dysplastic epithelium. The expression of these molecules in the resected margins can be used as an indicator for poor prognosis, recurrence, and surgical boundary estimation as these markers indicate proliferation of the cells with abnormal DNA content.

REFERENCES:

1. Foco F, Bilalovic N, Vranic S, Serdarevic F, Ramovic I and Imamovic E. *Coll. Anthropol*. 36 (2012) Suppl; 2: 129–132.
2. Yi Li, Bo Li, Bo Xu, Bo Han, Hui Xia, Qian-Ming Chen and Long-Jiang. *International Journal of Oral Science* (2015), 1–8.