ABSTRACT

INTRODUCTION

Oral carcinogenesis is a complex process involving multiple genetic damages. Molecular changes at the tumour invasive front have been recognized to provide insight into the aggressiveness of a tumour and hence prognosis. This study aimed to describe the demographic and clinicopathological characteristics of oral squamous cell carcinoma (OSCC) as well as the expression of several molecules, Ki-67, p53, MDM-2 and Bcl-2, in this area from various sites and their relationship with certain demographic (age, sex and gender) and clinicopathological parameters (TNM staging, Broder's classification and pattern of invasion).

MATERIALS AND METHODS

Forty five biopsy OSCC samples with sufficient connective tissues were collected for the study. Expression of Ki-67, p53, MDM-2 and Bcl-2 was investigated using immunohistochemical method. Expression of markers was captured with an image analyzer for assessment. Statistical significance was carried out using chi square tests (Pearson's and Fisher's exact) and Mann-Whitney U for categorical and continuous data.

RESULTS

Twenty five male and 20 female with a mean age of 59.0 years (± 11.90) were included in the study. Most subjects were Indian (68.9%) followed by the Chinese (22.2%) and Malay (8.9%). A majority of cases were in Stage III and IV (74.54%) and were moderately differentiated tumours (55.6%). Expression of Ki-67 was observed in 28 cases (62.2%), p53 in 35 cases (77.8%), MDM-2 in 44 cases (97.8%) and Bcl-2 in 2 cases (4.4%) at the tumour invasive front. Ki-67 and p53 shared similar pattern of expression;

immunoreactivity was observed mainly in the nuclei of basal (progenitor compartment), suprabasal (maturation compartment) layers of the tumour epithelium and also in the invading tumour islands. MDM-2 also exhibited similar pattern of expression, in addition to that, immunoreactivity was also observed in all layers of the tumour epithelium. Bcl-2 immunoreactivity was confined to the cytoplasmic of cells in the basal (progenitor compartment) and suprabasal (maturation compartment) layers of the tumour epithelium at the tumour invasive front. There is no significant relationship between the expression of markers and parameters investigated.

CONCLUSION

The expression of Ki-67, p53, MDM-2 and Bcl-2 might not serve as candidate markers for prognosis and to predict the course of the disease. Nevertheless, the overexpression of MDM-2 and Bcl-2 indicates that they may be involved in the mechanism for oral carcinogenesis.

RECOMMENDATIONS

Patients with good clinical data and follow up are the best candidates for future studies. Assessment of Ki-67 should be continued to shed light on its role in prognosis. Mechanism of p53 protein stabilization should be looked into via mutational analysis besides MDM-2 overexpression. Future study involving Bcl-2 should also include Bax in order to determine the role of the ratio of Bax/Bcl-2 in oral carcinogenesis.

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