

Prognostic value of Ki 67 and Phosphohistone H3 in oropharyngeal squamous cell carcinomas

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Introduction

Cell proliferation is an important event in oncogenesis. Proliferative activity is a reliable prognostic factor in many cancers. The objectives were to elucidate the prognostic value of the proliferation markers, Ki67 and phosphohistone H3 (PHH3) in oropharyngeal squamous cell carcinomas (OPSCC) and determine the correlation between the two markers.

Methodology

A retrospective study of 56 OPSCC obtained following locoregional treatment served to gather clinicopathological prognostic details. Proliferative activity of the tumours was assessed by immunohistochemical expression of Ki67 and PHH3. Association of prognostic parameters with each marker was analyzed and correlation between Ki67 and PHH3 was determined.

Results

The mean age was 57 years (SD 11.6, range 24-82 yrs). Floor of the mouth was affected the most (n=25, 44.6%). Ki67 index was significantly higher in the <50yr group (P=0.017), higher tumour grade (P=0.004), non-keratinizing cancers (P=0.018) and high T stage (P=0.042). Ki67 index was not significantly associated with lymphovascular or perineural invasion, margin involvement, nodal stage and stage group. PHH3 was not significantly associated with any of the prognostic parameters. A significant

positive correlation (Pearson correlation $r=0.481$, $p=0.000$) was observed between Ki67 index (mean=35.66%) and PHH3 (mean=1.97%).

Discussion

Ki67 is expressed by cells in G1, S, G2 and M phases of the cell cycle, but many may not necessarily complete the cell cycle. PHH3 is a mitosis-specific marker where phosphorylation of histone H3 is closely associated with mitotic chromatin condensation in late G2 and M phase. Although a significant association between high Ki67 and high PHH3 was found, Ki67 was of more value in evaluating prognostic factors in OPSCC.

Conclusion

Ki67 is superior to phosphohistone H3 as a prognostic parameter of oropharyngeal squamous cell carcinomas.