

Markers of epithelial to mesenchymal transition in association with survival in head and neck squamous cell carcinoma (HNSCC).

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Abstract

BACKGROUND:

Elucidating the molecular phenotype of cancers with high metastatic potential will facilitate the development of novel therapeutic approaches to the disease. Gene expression profiles link epithelial to mesenchymal transition (EMT) phenotype with high-risk HNSCC. We sought to determine the role of protein biomarkers of EMT in head and neck squamous carcinoma (HNSC) prognosis.

METHODS:

Protein expression analysis of EGFR, β -catenin and E-cadherin was performed on a cohort of 102 patients with HNSCC recruited between 1992 and 2005 using automated quantitative protein analysis (AQUA). We evaluated associations with clinicopathological parameters and prognosis.

RESULTS:

There were 67 patients with primary squamous cell carcinoma of the head and neck in this cohort who met inclusion criteria and for whom we had complete E-cadherin, beta-catenin and EGFR expression data. High E-cadherin expressers had longer 5-year progression-free survival (PFS) compared to those with low E-cadherin (59.7% versus 40.6%, $p=0.04$) and overall survival (OS) (69.6% versus 44.3%, $p=0.05$). Kaplan-Meier analysis showed that patients with low beta-catenin-expressing tumors trended toward worse 5-year PFS ($p=0.057$). High EGFR expressers had inferior OS compared to low EGFR expressers (27.7% vs. 54%, $p=0.029$). In the multivariable analysis context, E-cadherin remained an independent predictor of improved OS (HR=0.204, 95% CI 0.043 to 0.972, $p=0.046$) while EGFR trended towards significance for OS.

CONCLUSIONS:

The putative markers of EMT defined within a panel of HNSCC using AQUA are associated with tumors of poor prognosis.