P16 and COX 2 expression in squamous cell carcinoma of the upper aero-digestive pathway

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Background: Overexpression of COX 2 has been described in squamous cell carcinoma of the head and neck (SCC), thus being a potential target for treatment. HPV oncoproteins E6 and E7 upregulate COX 2 expression, and correlate with overexpression of p16 which is used as a surrogate biomarker. Our hypothesis is that p16 expression correlates with COX 2 expression.

Study design: Biopsy samples of SCC were collected from two hospitals in Santiago, Chile. All cases were newly diagnosed. Patients gave consent, the protocol was approved by the local ethics committee. p16 and COX 2 expression were studied by immunohistochemistry. Results were analysed with EpiInfo7 using one tail Fischer exact test and odds ratio, level of significance < 0.05.

Results: 39 patients were included, site of the tumour: 33 cases larynx, 3 oropharynx, and 3 hypopharynx. p16 was overexpressed (p16+) in 14 cases (36%), and COX 2+ in 19 cases (49%). Of those samples p16+, 10 were also COX 2+ (71%). Of those samples p16−, 9 were COX 2+ (36%). This difference is significant (p: 0.03). Both markers were overexpressed in 10 samples. Odds ratio for COX 2 overexpression when p16+: 4.44 (1.07-18.3).

Conclusions: HPV oncogenic activity is described in laryngeal SCC. p16 overexpression correlates with COX 2 overexpression. We propose p16 as a positive predictor for COX 2 overexpression.

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