

AB079. HER2 as a possible therapeutic target in squamous cell carcinoma of the conjunctiva

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Background: Invasive squamous carcinoma (SCC) is the most frequent malignant neoplasia of the conjunctiva, 33% of which will metastasize. C-erbB-2/neu (HER2) is an oncogene associated with poor prognosis, metastatic potential and aggressive behavior in several tumors, including breast, stomach, among others. HER2 amplification is also associated with the response to anti-HER2 treatment. The aim of this study is to evaluate HER2 expression in the progression of ocular surface squamous neoplasia (OSSN) and as a potential therapeutic target.

Methods: Ninety-eight OSSN lesions including 17 papillomas (P), 27 conjunctival intraepithelial neoplasia (CIN) I, 19 CIN II, 13 CIN III, and 11 SCC were evaluated. Eleven conjunctivas from normal human eyes (NHE) were also included in the analysis. Immunohistochemistry was performed to analyze HER2 (clone 29D8) expression, which was graded as follows: complete membrane staining in more than 10% of malignant cells (3+); weak to moderate complete staining in more than 10% of malignant cells (2+); none or fewer than 10% cells staining (0 to 1+, respectively). Positive HER2 was considered when a score 2+ or 3+ was determined. Breast carcinoma with HER2 amplification was used as a positive control. FISH technique was performed in the positive cases to confirm results. Statistical analysis was performed using Fisher's exact test.

Results: HER2 positive expression was detected in 6% of P (100% score 2+), 11% of CIN I (100% score 2+), 32% of CIN II (100% score 2+), 30% of CIN III (100% score 2+), 29% of SCC (50% score 2+ and 50% score 3+). Benign lesions showed lower HER2 expression than *in situ* ($P=0.03$) and invasive tumors ($P=0.02$). No correlation between HER2 and age or tumor thickness in SCC was found ($P>0.05$).

Conclusions: HER2 is expressed in conjunctival SCC. Moreover, one third of SCC were graded as 2+ or 3+. These results support the evaluation of anti-HER2 therapy in conjunctival SCC. Pre-clinical trials should be performed to determine the importance of this marker in conjunctival SCC for predicting response to treatments targeting this pathway.

Keywords: HER2; invasive squamous carcinoma; conjunctiva

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