The expression of Type IV collagen α6 chain is related to prognosis in patients with esophageal squamous cell carcinoma

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Background: The destruction of the basement membrane (BM) is the first step in cancer cell invasion and metastasis. Type IV collagen is a major component of BM, and is composed of six genetically distinct α(IV) chains, α1(IV) to α6(IV). We have reported the loss of the α5(IV)/α6(IV) chains in epithelial BM at early stage of cancer cell invasion in several cancers.

Material and method: We examined immunohistochemically the expression of α(IV) chains in esophageal squamous cell carcinoma (ESCC), and performed the functional analysis of α6 chain by SiRNA using esophageal cancer cell lines.

Result: In normal esophageal epithelium and intraepithelial carcinoma (m1), the α5/α6 chains were stained in continuous linear pattern in the BM, but in intramucosal carcinoma (m2,3) partly and discontinuously. In some cases of ESCC with the stromal invasion, the α5/α6 chains were lost, but in other cases were remained in the BM zone surrounding cancer cell nests. Prognostic analysis of the former cases had a poorer prognosis than that of the latter. In 5 of 11 esophageal cancer cell lines, the expression of α6 chain was detected at protein level. The suppression of α6 chain by SiRNA revealed the slight increase of cancer cells invasiveness in vitro.

Conclusion: Evaluation of Type IV collagen α6 chain expression may be useful for determining the tumor cell properties, as one of a prognostic factor, in patients with ESCC.