Analysis of interaction effect between vascular endothelial growth factor and their receptors in human oral squamous cell carcinoma cell lines; mRNA expression levels for VEGF-A and VEGF-C

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Abstract

Among in human oral squamous cell carcinoma (OSCC) cell lines HSC2, HSC-3, HSC-4, and OSC-19, HSC-2 and OSC-19 cell lines that were highly expressed VEGF-A mRNA showed high of VEGF-C mRNA expression. The purpose of the present study was to clarify that interaction of VEGF-A, VEGF-C, and VEGF receptors (VEGFR(VEGFR-1, VEGFR-2, and VEGFR-3)) in human OSCC cell lines.

We investigated the expression of VEGFR in human OSCC cell lines (HSC-2, HSC-3, HSC-4, and OSC-19) by reverse transcription polymerase chain reaction (RT-PCR). Furthermore, whether the expression levels of VEGF-A, VEGF-C, and VEGFR mRNA may be changed adding the human recombinant VEGF-A and VEGF-C, we examined the expression levels of VEGF-A, VEGF-C, and VEGFR mRNA by real-time RT-PCR in cultured human OSCC cell lines.

In each cell line expression of VEGFR-1 mRNA was detected, however, that of VEGFR-2 and VEGFR-3 mRNA were not detected. Expression levels of VEGF-A, VEGF-C, and VEGFR-1 mRNA when added to human recombinant VEGF-A and VEGF-C did not have statistically significant differences.

In OSCC cell lines, the expression levels of VEGF-A, VEGF-C, and VEGFR did not have any correlations in each other. Further studies were required to clarify the correlation of VEGF-A, VEGF-C, and VEGFR in human OSCC.

Keywords: Oral squamous cell carcinoma, VEGF-A, VEGF-C, VEGF receptors.