

Downregulation of Epidermal Growth Factor Receptor in Advanced Stage Laryngeal Squamous Cell Carcinoma

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Abstract : In this globalization era, much attention has been drawn to various molecular biomarkers, which may have the potential to predict the progression of cancer. Epidermal growth factor receptor (EGFR) is the classic member of the ErbB family of membrane-associated intrinsic tyrosine kinase receptors. EGFR expression was found in several organs throughout the body as its roles involve in the regulation of cell proliferation, survival, and differentiation in normal physiologic conditions. However, anomalous expression, whether over- or under-expression is believed to be the underlying mechanism of pathologic conditions, including carcinogenesis. Even though numerous discussions regarding the EGFR as a prognostic tool in head and neck cancer have been established, the consensus has not yet been met. The aims of the present study are to assess the correlation between the level of EGFR expression and demographic data as well as clinicopathological features and to evaluate the ability of EGFR as a reliable prognostic marker. Furthermore, another aim of this study is to investigate the probable pathophysiology that explains the finding results. This retrospective study included 30 squamous cell laryngeal carcinoma patients treated at King Chulalongkorn Memorial Hospital from January 1, 2000, to December 31, 2004. EGFR expression level was observed to be significantly downregulated with the progression of the laryngeal cancer stage. (one way ANOVA, $p = 0.001$) A statistically significant lower EGFR expression in the late stage of the disease compared to the early stage was recorded. (unpaired t-test, $p = 0.041$) EGFR overexpression also showed the tendency to increase recurrence of cancer (unpaired t-test, $p = 0.128$). A significant downregulation of EGFR expression was documented in advanced stage laryngeal cancer. The results indicated that EGFR level correlates to prognosis in term of stage progression. Thus, EGFR expression might be used as a prevailing biomarker for laryngeal squamous cell carcinoma prognostic prediction.

Keywords : downregulation, epidermal growth factor receptor, immunohistochemistry, laryngeal squamous cell carcinoma

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