Glucose Transporter-1 Expression in Squamous Cell Carcinoma of the Tongue

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Background: Tumor cells are known to express hypoxia-related proteins such as glucose transporter-1 (Glut-1). These hypoxia-induced changes may allow tumor cells to survive under sustained hypoxic microenvironments, and surviving tumor cell under hypoxia may develop a more aggressive phenotype resulting in poor prognosis. Methods: Glut-1 expression was analyzed by immunohistochemistry, and their association with prognosis was assessed in 60 patients with squamous cell carcinoma of the tongue. Results: Glut-1 expression was diffuse with a membranous pattern, and the median percentage of Glut-1 positive tumor cells was 60% (range: 0.0 - 90.0%). High Glut-1 expression (the percentage of positive tumor cells ≥ the median value, 60%) was associated with the location of primary lesion, lymph node metastasis status, and stage (p < 0.05). The expression of Glut-1 was correlated with Ki-67 expression (r = 0.406, p = 0.001). Microvessel density represented by CD31 staining was also correlated with Glut-1 expression although its significance is weak (r = 0.267, p = 0.039). In the univariate analysis, the group with high Glut-1 expression showed a poorer overall survival than low Glut-1 expression (p < 0.05). Conclusions: The expression of Glut-1 may be useful for prognostication of patients and help determine treatment strategy in the management of squamous cell carcinoma of the tongue.

ERCC1 Expression in Nasopharyngeal Cancer treated with Cisplatin-based Concurrent Chemoradiotherapy

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Background: The excision repair cross-complementation (ERCC1) is a nucleotide excision repair (NER) component that participates in DNA damage recognition and DNA strand incision. The NER pathway is involved in eliminating both cisplatin-induced DNA adducts and nucleotides damaged by UV-irradiation. Several clinical studies have shown that the ERCC1 expression is associated with resistance of platinum-based chemotherapy and poor prognosis in several tumors, non-small cell lung cancer, ovarian cancer, and gastric cancer. Nasopharyngeal cancer is uncommon disease and cisplatin-based concurrent chemoradiation (CCRT) is considered as standard treatment for locally advanced disease. We investigate the expression of ERCC1 in locally advanced nasopharyngeal cancer patients treated with cisplatin-based CCRT and its clinical implications. Methods: Between Sep.1996 and July 2005, 42 patients with histologically proven locally advanced nasopharyngeal cancer were studied. ERCC1 expression was assessed by immunohistochemistry. The correlation of ERCC1 expression with various clinicopathological factors, including progression free survival (PFS) and overall survival (OS) was analyzed. Results: The median age of 42 patients was 48 years (range:23-69), and 35 (83%) were male. Of the 42 tumors, 24 (57.1%) were ERCC1 positive. With median follow-up period of 51.4 months (range 9.7–122.4), the median PFS was 86.5 months (95% CI,157.4–105.7) for ERCC1 positive group and 73.1 months (95% CI,57.7–88.5) for ERCC1 negative group, respectively, and there was no significant difference (P=0.3774). The median OS was 100.2 months (95% CI,99.5–101.0) for ERCC1 positive group, whereas in ERCC1 negative group, the median survival has not yet been reached, but no significant difference was noted (P=0.417). Conclusion: Our results suggest that ERCC1 was highly expressed in nasopharyngeal cancer, but ERCC1 expression does not appear to be associated with clinical outcomes after CCRT for locally advanced nasopharyngeal cancer. Further prospective studies with larger numbers of patients are required to determine the exact roles of ERCC1 in nasopharyngeal cancer treated with CCRT.