Macrophage Infiltration of Tumor Cell Islets Predicts Good Prognosis of Lung Cancer

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Many studies have suggested that the immune infiltrate may benefit the tumor by producing a pro-tumor microenvironment. The aim of this study is to investigate the macrophage infiltration in lung cancer and benign lesions, and to evaluate its correlation with cancer prognosis.

Methods: Surgically resected 146 cases of lung cancer and 20 cases of benign lesions were examined by immunohistochemical SP method using monoclonal antibody to CD68. Statistical analyses were carried out using SPSS13.0.

Results:
1) Macrophage counts in tumor stromal and islets in lung cancer were significantly lower than those in benign lesions (p<0.05); Macrophage counts in tumor islets were significantly lower than those in tumor stroma (p<0.05).
2) Tumor islets macrophage counts and Tumor islets/stromal macrophage ratio were both inversely correlated with tumor stages; Tumor stromal macrophage counts were positively correlated with tumor stages; Tumour islets macrophage counts in patients with lymph node metastasis were lower than those without lymph node metastasis (P<0.05). Tumor stromal macrophage counts in patients with lymph node metastasis were higher than those without lymph node metastasis (P<0.05).
3) Tumor islets macrophage counts and tumor islet/stromal macrophage ratio were positively correlated with patient survival time (P<0.001); Tumor stromal macrophage counts were inversely correlated with patient survival time (P<0.01).
4) Tumor islet macrophage counts and tumor islet/stromal macrophage ratio were favorable independent prognostic indicators (p<0.05); In contrast, tumor stromal macrophage count was an independent predictor of reduced survival (p<0.05).

Conclusions:
1) Tumor islet macrophage count and tumor islet/stromal macrophage ratio are powerful predictors of survival in lung cancer; This has important implications for adjuvant therapy after resection of lung cancer.
2) Macrophage infiltrated within tumor of lung cancer may have dual functions. Macrophages entered tumor islets may have anti-tumor immune responses; but those remained in stroma may potentially promote progression and metastasis of cancer.

Increased expression levels of human telomerase reverse transcriptase (hTERT) mRNA correlates with poor prognosis in resected non small cell lung cancer (NSCLC) patients

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Background: Lung cancer is the leading cause of death worldwide. NSCLC accounts for approximately 80% of all lung tumors. Telomerase adds hexameric TTAGGG nucleotide repeats onto the ends of chromosomal DNAs to compensate for losses of each cell replication. Correlation between telomerase level expression, clinico-pathological characteristics and survival of lung cancer is not well established in NSCLC.

Methods: We studied 149 consecutive patients (140 men/9 women) with resected NSCLC: 37.6% adenocarcinoma, 59% squamous cell, and 3.4% large cell carcinoma. Pathological stage: I (36.9%), II (32.3%) and III (30.8%). Reverse transcription-polymerase chain reaction (RT-PCR) analysis was used for the detection of hTERT expression in lung cancer tissues immediately snap-frozen in liquid nitrogen at -80°C.

Results: The positive rate of hTERT in 70 non-small cell lung cancer tissues was 52.9%. There was no significant relationship between CN-II expression and clinic pathological parameters. Among 21 patients who had received gemcitabine chemotherapy, those with tumor progression (positive rate 83.3%) had higher CN-II expression than the patients with efficacious (positive rate 16.7%, P<0.05) and disease control chemotherapy (positive rate 33.3%, P<0.05). Patients with positive CN-II expression had significant better OS than negative (P<0.05).

Conclusion: Over expression of CN-II maybe correlated with resistance to gemcitabine. CN-II may be an independent prognostic factor for response and total survival time for patients with gemcitabine chemotherapy.