Clinicopathological Study of p21, p27 and p53 Expression in Primary Non Small Cell Lung Cancer

Masafumi YAHIRO[1)], Takayuki SIRAKUSA[1)], Tosi YONEDA[1)],
Koichi OSIMA[2)] and Masahiro KIKUCHI[2)]

[1)] *Second Department of Surgery, School of Medicine, Fukuoka University*
[2)] *First Department of Pathology, School of Medicine, Fukuoka University*

Abstract : We studied the expression of p21 and p27 proteins as cancer-suppressing factors in primary lung cancer and also evaluated its clinical significance. With respect to p53, a suppressing factor genetically located upstream of p21 and p27 in the cancer suppressing system, we studied how its clinical significance changes in relation to two factors.

We used 139 cases with primary lung cancer (adenocarcinoma 83 cases, squamous cell carcinoma 56 cases ; 104 males, 35 females) as the subjects, immunohistochemistry was performed using antibodies against p21, p27 and p53 proteins. P21 protein expressed itself in 53 cases (38.1%), p27 protein in 64 cases (49.0%) and p53 protein in 67 cases (48.2%). Regarding clinicopathological factors, either p21 or p27 expressed itself more frequently in the cases of Stage I compared with cases of Stage II～IV. Regarding the grade of differentiation, the frequency of expression of p21 and p27 was significantly higher in the highly-differentiated type than in the moderately-differentiated type and the poorly-differentiated type. As for T factors, no significant difference in the expression of p21 and p27 was found between T1 and T2～4. Regarding the expression of these proteins in cases having distant metastasis or lymph node metastasis, both p21 and p27 showed significantly lower values in the positive metastasis cases than in the negative metastasis cases. As for the prognosis, the 5-year survival rate was significantly higher in the cases with expression of p21 and p27 than in the non-expression cases. The 5-year survival rate was significantly higher in p21-positive p53-negative cases than in the p21-negative p53-positive cases.

Likewise, the 5-year survival rate was significantly higher in the p27-positive p53 -negative cases than in the p27-negative p53-positive cases. The above results suggest that p21 and p27 proteins can serve as one of the factors to predict prognosis in primary lung cancer.

Key words : Lung cancer, p53, p21, p27, cyclin-dependent kinase, Cell cycle