Summary

Predicting of the Period of Recurrent for a Post-Operative Glioblastoma after Radiochemotherapy Using ^{201}TlCl SPECT

Yoshikatsu SEIKI*, Nobuo SUGO*, Takao KUROKI**, Naoyuki HARADA*, Kyosuke YOKOTA*, Chikao MIYAZAKI*, Iekado SHIBATA* and Kazuhiro TACHIKI***

**Department of Neurosurgery, Toho University School of Medicine, Omori Hospital*
***Department of Neurosurgery, Toho University School of Medicine, Sakura Hospital*
****Department of Radiology, Toho University School of Medicine, Omori Hospital*

After radiochemotherapy for a post-operative glioblastoma multiforme (GB), the majority of patients return at a later date with a recurrent. To assess whether ^{201}TlCl uptake can be used as a prognostic indicator in patients with GB, we measured the ratio of ^{201}TlCl uptake in tumor to ^{201}TlCl uptake in normal brain (TL index) in 10 patients at the end of radiochemotherapy and followed all the patients until they returned with a recurrent. The TL indices at the end of radiochemotherapy indicated 1.36 to 6.82 (mean$\pm$SD; 3.59$\pm$1.84), and the terms of tumor recurrent were 3–12 months (5.55$\pm$3.10 month). There was a significant negative correlation between the TL indices and the terms of tumor recurrent ($y=-1.28x+10.14$, $r=0.760$, $p<0.01$). Especially, three cases indicated less than 2.0 did not returned with a recurrent in 8 months and 7 cases more than 2.0 returned with a recurrent in 5 months. This study resulted that ^{201}TlCl SPECT was clinically useful to predict the period of recurrent for GB.

Key words: Glioblastoma, Radiation, Tumor recurrence, ^{201}TlCl, SPECT.