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BUSABONGKOCH CHAWENGCHAO : COMPARISON OF *p53* TUMOR SUPPRESSOR GENE MUTATIONS IN HUMAN BRAIN TUMORS BETWEEN CHILD AND ADULT PATIENTS. THESIS ADVISORS : WIPAWAN THANGNIPON Ph.D., SONGSAK PETMITR Ph.D., MATHUROSE PONGLIKITMONGKOL Ph.D., NAIPHINICH KOTCHABHAKDI Ph.D. 139 p. ISBN 974-662-857-7

Using polymerase chain reaction-single strand conformation polymorphism (PCR-SSCP) and direct sequencing, mutations in the *p53* tumor suppressor gene were analyzed from 30 cases of brain tumors of various histological subtypes. Among 23 adults and 7 children analyzed, 3 cases had *p53* gene mutations: one was a pediatric case showing a point mutation in exon 5 with a splice site mutation in intron 5, and two were adult cases showing point mutations in exons 5 and 6, respectively. All mutations were located outside the hot spots and one of them (codon 166) was first detected in a low-grade astrocytoma (gemistocytic type). No mutation was detected in non-astrocytic tumors, e.g., oligodendroglioma, ependymoma, suggesting that *p53* mutations were surprisingly specific for astrocytic gliomas. *p53* mutations were present in both low- and high-grade adult astrocytomas, but appeared restricted to only high-grade childhood gliomas. The frequency of *p53* gene mutations in adult astrocytomas examined was 11.7% (2 of 17 patients), whereas it was 50% (1 of 2 patients) childhood astrocytomas. Survival rates were also studied and it was found that 3 cases died, 19 cases were alive, and there was no information for 8 cases, in a period of 5 months after surgery. The 3 dead patients (one child and two adults) showed the highest malignant grade but had no *p53* mutations. Among 3 patients who carried the *p53* mutations, one was alive but there was no information about the others suggesting that genetic alteration of *p53* gene represents an early step in adult astrocytoma tumorigenesis, whereas inactivation of *p53* is not an obligatory step in formation of high-grade childhood astrocytoma. Survival rate of adult cases (67%) was higher than that of childhood cases (50%). This study implies that astrocytomas with *p53* mutations may not be associated with poor survival. In the case of adult patients, survival of low-grade gliomas showed a better prognosis than those of high-grade ones.