Neuro-cognitive Outcome in Thai Pediatric Brain Tumor Survivors of Prasat Neurological Institute

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BACKGROUND More pediatric brain tumor patients have survived with long-term complications after effective treatment modalities in recent years. Neuro-cognitive complications is one of the most important outcome in pediatric brain tumor survivors.

OBJECTIVE: To assess neuro-cognitive problems in pediatric brain tumor survivors at Prasat Neurological Institute

METHODS & RESULTS Sixty-five brain tumor patients diagnosed and treated at average age of 8.4 $\pm$ 4.13 years old, and having been follow-up for average 6.2 $\pm$ 4.46 years were evaluated for neuro-cognitive functions. Twenty brain tumors (31%) were malignant (WHO grade III/IV), and 47 tumors (72%) were in supratentorial location. Thirty-six brain tumors (55%) had adjunctive radiotherapy (RT) including all malignant cytology and 36% of low grade tumors. Overall average scores of FIQ, were 71.4$\pm$ 14.7 points. Mental retardations (FIQ < 70) were found in 27 cases (47%) mostly in mild MR (93%). Learning achievement tests were abnormal in 48 cases (83%) mostly in arithmetic (96%). Attention deficits were found in 3 cases (6%), only in supratentorial tumors. Memory impairments were found in 32 cases (57%) mostly in verbal memory (54%). According to RT as known factor worsening neuro-cognitive function in children, supratentorial tumors with focal RT group had more memory impairment whereas infratentorial tumors with craniospinal irradiation group had more mental retardation than the other groups with significant $P < 0.05$. According to follow-up time interval, the longer interval group (>10 years) comparing with shorter interval group (<5 years) had more mental retardations, abnormal achievement tests, attention deficits and memory impairments, $P > 0.05$.

CONCLUSION Neuro-cognitive problems were common in pediatric brain tumor survivors. The effective specific neuro-cognitive rehabilitation should be arranged for these patients. The neuro-cognitive monitoring should be serially done to assess the complications and the effectiveness of brain tumor treatments.

Keywords: Pediatric brain tumor, neuro-cognitive outcome