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Clinical Benefits of Photodynamic Therapy Using Talaporfin Sodium in Patients With Isocitrate Dehydrogenase–Wildtype Diagnosed Glioblastoma: A Retrospective Study of 100 Cases

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Abstract

Background and objectives: Photodynamic therapy (PDT) with talaporfin sodium is an intraoperative local therapy administered after the surgical removal of malignant gliomas. However, its clinical efficacy in a large patient population has not been determined. To analyze the clinical outcomes and prognosis in isocitrate dehydrogenase (IDH)-wildtype glioblastoma patients treated with PDT.

Methods: This retrospective study included patients with newly diagnosed IDH-wildtype glioblastoma treated at Kobe University Hospital between January 2013 and December 2022. PDT involves irradiation of the resection cavity with a 664-nm semiconductor laser after an intravenous infusion of talaporfin sodium. The main outcome measures were the recurrence patterns and survival times, which were compared between the PDT and non-PDT groups. Univariate and multivariate analyses were used to determine the prognostic factors. In addition, adverse events and prognostic factors in the PDT group were analyzed.

Results: A total of 44 and 56 patients were included in the PDT and non-PDT groups, respectively. The local recurrence rate was significantly lower in the PDT group than in the non-PDT group (51.3% vs 83.9%), whereas the distant recurrence and dissemination rates were significantly higher in the PDT group than in the non-PDT group (48.7% vs 16.1%). Two grade 3 adverse events were observed in the PDT group. The median progression-free survival and overall survival times were significantly longer in the PDT group than in the non-PDT group (progression-free survival: 10.8 vs 9.3 months, respectively, and overall survival: 24.6 vs 17.6 months, respectively). Multivariate analysis of the PDT groups revealed that younger age was an independent prognostic factor.

Conclusion: PDT with talaporfin sodium provided effective local control with minimal adverse effects. The survival time of the patients treated with PDT was significantly longer than that of the patients who did not receive PDT. Therefore, a randomized controlled clinical trial on PDT is warranted.

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