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Nimotuzumab-vinorelbine combination therapy versus other regimens in the treatment of pediatric diffuse intrinsic pontine glioma

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Abstract

Purpose: Pediatric diffuse intrinsic pontine glioma (DIPG) is a fatal disease associated with a median survival of < 1 year despite aggressive treatments. This retrospective study analyzed the treatment outcomes of patients aged < 18 years who were diagnosed with DIPG between 2012 and 2022 and who received different chemotherapy regimens.

Methods: After radiotherapy, patients with DIPG received nimotuzumab-vinorelbine combination or temozolomide-containing therapy. When nimotuzumab was unavailable, it was replaced by vincristine, etoposide, and carboplatin/cyclophosphamide (VECC). Temozolomide was administered as a single agent or a part of the combination chemotherapy comprising temozolomide, irinotecan, and bevacizumab. Furthermore, 1- and 3-year overall survival (OS), progression-free survival (PFS), and median OS and PFS were analyzed.

Results: The median age of 40 patients with DIPG was 97 ± 46.93 (23-213) months; the median follow-up time was 12 months. One and 3-year OS were 35.0% and 7.5%, respectively. Median OS was 12 months in all patients (n = 40), and it was 16, 10, and 11 months in those who received first-line nimotuzumab-vinorelbine combination (n = 13), temozolomide-based (n = 14), and VECC (n = 6) chemotherapy regimens, respectively (p = 0.360). One patient who received gefitinib survived for 16 months. Conversely, patients who never received radiotherapy and any antineoplastic medicamentous therapy (n = 6) had a median OS of 4 months.

Conclusion: Nimotuzumab-vinorelbine combination therapy prolonged OS by 6 months compared with temozolomide-containing chemotherapy, although the difference was not statistically significant.

Keywords: Diffuse pontine glioma; Medicamentous therapy; Nimotuzumab; Pediatric; Survival; Vinorelbine.