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**Temozolomide in the treatment of newly diagnosed diffuse brainstem glioma in children**

Daniela Rizzo<sup>1</sup>, Maria Scalzone<sup>1</sup>, Antonio Ruggiero<sup>1</sup>, Palma Maurizi<sup>1</sup>, Giorgio Attinà<sup>1</sup>, Stefano Mastrangelo<sup>1</sup>, Ilaria Lazzareschi<sup>1</sup>, Vita Ridola<sup>1</sup>, Cesare Colosimo<sup>2</sup>, Massimo Caldarelli<sup>3</sup>, Mario Balducci<sup>4</sup>, Riccardo Riccardi<sup>1</sup>

<sup>1</sup> Division of Pediatric Oncology, Catholic University of Rome, Italy

<sup>2</sup> Department of Bioimaging and Radiological Sciences, Catholic University of Rome, Italy

<sup>3</sup> Department of Pediatric Neurosurgery, Catholic University of Rome, Italy

<sup>4</sup> Department of Radiation Oncology, Catholic University of Rome, Italy

**Introduction:** The purpose of this study was to assess the efficacy and toxicity of radiotherapy (RT) with concurrent temozolomide (TMZ) chemotherapy followed by adjuvant TMZ in children with diffuse intrinsic pontine glioma (DIPG).

**Methods:** Patients younger than 18 years with newly diagnosed diffuse brainstem glioma were enrolled. Histologic confirmation was not necessary for any patient in whom typical magnetic resonance imaging scans revealed a DIPG. No previous therapy, excluding corticosteroid treatment, was permitted. Children were treated with focal RT to a dose of 59.4 Gy along with concurrent daily TMZ (75 mg/m<sup>2</sup>/day). Four weeks after completing the initial RT–TMZ schedule, adjuvant TMZ (200 mg/m<sup>2</sup>/day, days 1–5) was given every 28 days up to 12 cycles or progression disease.

**Results:** Fifteen children with a median age of 9 years (range 3–14) were enrolled in this clinical trial. 14 out of the 15 patients completed the chemoradiotherapy. A median number of 3 courses were administered per patient (range: 2–9). The toxicity associated with TMZ was primarily hematopoietic (grade III/IV thrombocytopenia and leucopenia). At a median follow-up of 15 months 13 children had died and 2 children were alive with progressive disease. No patient experienced CR. The median time to progression was 7.15 months (range 3.4–15.3 months).

**Conclusion:** Chemoradiotherapy with TMZ followed by adjuvant TMZ did not improve the PFS but is associated with higher overall survival when compared with radiotherapy alone in the treatment of children with DIPG.