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Vincristine, doxorubicin, cyclophosfamide, actinomycin D, ifosfamide, and etoposide in adult and pediatric patients with nonmetastatic Ewing sarcoma. Final results of a monoinstitutional study

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ABSTRACT

Aims and background. To investigate a six-drug combination in patients with nonmetastatic Ewing sarcoma, focusing on chemotherapy-induced necrosis and chemotherapy toxicity in adult and pediatric patients.

Methods and study design. Alternating cycles of vincristine (1.5 mg/m^2), doxorubicin (80 mg/m^2) and cyclophosfamide (1200 mg/m^2) (weeks 0, 6, 13, 22 and 31), ifosfamide (9 g/m^2), vincristine (1.5 mg/m^2), and actinomycin D (1.5 mg/m^2) (weeks 3, 16, 25 and 34), and ifosfamide (9 g/m^2) and etoposide (450 mg/m^2) (weeks 9, 19, 28 and 37) were administered. Primary chemotherapy-induced necrosis was graded: G3 (complete necrosis), G2 (microfoci of tumor cells) and G1 (macrofoci of tumor cells).

Results. From 1996 to 1999, 50 patients with Ewing sarcoma were enrolled. The median age was 23.5 years (range, 4-56). Chemotherapy-induced necrosis (in 28 patients) was G3 in 36%, G2 in 21% and G1 in 43%. At a median follow-up of 110 months (range, 36-129), 5-year overall survival and event-free survival were 72% and 66%, respectively. According to histologic response, 5-year event-free survival was 90% in G3, 83% in G2, and 42% in G1 ($P = 0.02$). In adult and pediatric (<18 years) patients, the incidence of G4 leukopenia was 62% and 74%, respectively, with febrile neutropenia in 13% and 21%, respectively. G4 thrombocytopenia occurred in 3% of cycles in adults and in 7% in pediatric patients. Platelet and red blood cell transfusions were required respectively in 1% and 11% of cycles in adults and in 6% and 24% of cycles in pediatric patients.

Conclusions. The six-drug combination can be administered safely in adult and pediatric populations. About 40% of patients have a poor chemotherapy-induced tumor necrosis, leading to poor probability of survival. New strategies are recommended to improve survival of poor responders to the six-drug combination. **Free full text available at www.tumorionline.it**

Key words: chemotherapy toxicity, Ewing sarcoma, necrosis.

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