Bendamustine hydrochloride in patients with refractory soft tissue sarcoma: a noncomparative multicenter phase 2 study of the German sarcoma group (AIO-001)

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BACKGROUND: For patients with advanced soft tissue sarcoma (STS), no standard treatment is established after previous chemotherapy with anthracyclines and ifosfamide. Bendamustine hydrochloride is a bifunctional alkylating agent that is not cross-resistant to other DNA-interacting substances including anthracyclines and oxazaphosphorines. It has shown single-agent activity in refractory lymphoma, myeloma, and some solid tumors. A phase 2 study was initiated to evaluate the efficacy of bendamustine in previously treated patients. METHODS: Thirty-six of 44 screened patients were included and received a total of 101 cycles (median, 2 cycles; range, 1-8 cycles), 21 as second-line treatment and 15 as third-line treatment. The median age was 55 years (range, 18-79 years). Bendamustine was given as an intravenous infusion over 30 minutes at a dose of 100 mg/m\(^2\) on 2 consecutive days and repeated every 28 days. Eighty-eight percent of cycles could be given without dose or schedule modification. RESULTS: The toxicity profile was mild, consisting of National Cancer Institute Common Toxicity Criteria (CTC) grade 3 neutropenia in 11% and grade 3 anemia in 9% of patients. Nonhematologic toxicities were noticed with CTC grade 3 fever in 3% of patients. No other grade 3 toxicity and no treatment-related toxic deaths were observed. The best overall response according to Response Evaluation Criteria in Solid Tumors (RECIST) criteria was 1 partial remission (3%) and disease stabilizations in 31% of patients. Six of 15 patients (40%) with leiomyosarcoma histology achieved stable disease. The estimated 3-month and 6-month progression-free survival rates were 35.3% and 23.5%, respectively, for all histologic subtypes included. CONCLUSIONS: In patients with refractory STS, bendamustine is well tolerated and appears moderately effective, particularly in patients with leiomyosarcoma histology.