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Role of palliative radiotherapy in the management of metastatic pediatric neuroblastoma: a retrospective single-institution study.

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Abstract

PURPOSE: Neuroblastoma is the most common extracranial solid tumor of childhood, and metastatic disease occurs in a majority of patients. Although radiotherapy (RT) plays an important role in the management of metastatic disease, data on the effectiveness of palliative RT, in this setting, is scarce.

METHODS AND MATERIALS: A retrospective review of the outcome of palliative RT in children with metastatic neuroblastoma was conducted at the Institut Curie.

RESULTS: Thirty-four children with 69 metastatic sites received palliative RT between 2000 and 2009. Sites of disease were grouped according to location, and there were 19 soft tissue, 38 bone, 9 central nervous system (CNS), and 3 hepatic metastases. Mean RT doses for the four groups were 19.6 Gy, 17.6 Gy, 17 Gy, and 5 Gy, respectively. Median survivals after RT were 27 days, 43 days, 29 days, and 27 days, respectively, for an overall median survival of 29.5 days. For the soft tissue metastases, good response was defined as a decrease >25% in the tumor mass or any decrease in pain; the response rate was 84.2%. Furthermore, a dose 15 Gy or more significantly increased response rate (100% vs. 57%; $p = 0.038$), compared with a dose smaller than 15 Gy. For the bone group and CNS metastases group, the overall response rates were 63.2% and 44%, respectively. A trend toward dose-response relationship was seen for the bone but not the CNS group.

CONCLUSION: Good response rates are achieved with palliative RT for symptomatic metastatic pediatric neuroblastoma, but survival is dismal.

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