

Risk of neoplastic meningitis following surgical resection of cerebellar metastases

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Received: 25 September 2007 / Accepted: 7 April 2008 / Published online: 26 April 2008
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Abstract *Background.* Based on limited literature, an at risk group of patients for development of neoplastic meningitis (NM) are those with resected cerebellar parenchymal metastases. *Objective.* Characterize the incidence of NM in patients with cerebellar metastases treated with either surgical resection or radiotherapy. *Patients and methods.* A retrospective study to determine outcome and in particular the occurrence of NM in 30 patients with resected cerebellar metastases (Group 1) and in 50 patients with cerebellar metastases treated with radiotherapy only (Group 2). Additionally, 10 patients with coincident cerebellar metastases and NM were identified (Group 3) and compared with these groups. *Results.* Median survival in Group 1 was 8 months (range 4–24 months). A single patient (1/30; 3%) in this cohort developed NM that was not treated. Median survival in Group 2 was 4 months (range 1.5–18 months). Two patients (2%) in Group 2 developed NM, in neither was the NM treated. Group 3 had a median survival of 3 months (range 1–6 months). No patient in Group 3 had a history of prior posterior fossa surgery. *Conclusions.* The incidence of NM following resection of cerebellar metastases (3%: Group 1) was no greater than that seen following treatment of cerebellar metastases with radiotherapy only (2%: Group 2). In addition, in a large data base of patients with NM (40% with parenchymal metastases), cerebellar metastases occurred at a proportion (10%: Group 3) expected based on proportional brain volume and cerebral blood flow.

Keywords Resected cerebellar metastases · Neoplastic meningitis

Introduction

Neoplastic meningitis (NM) is the third most common manifestation of central nervous system (CNS) metastases and is seen in 1–3% of all patients with cancer [1]. At present, the risk of developing NM has been most predictive in patients with acute lymphoblastic leukemia and high-grade non-Hodgkin's lymphoma in whom the risk is sufficient to warrant prophylactic cerebrospinal fluid (CSF)-directed therapy. Determining which patients with solid cancers carry a high likelihood of developing NM has been more problematic and consequently intra-CSF prophylaxis is not routinely employed. Based on limited literature, an at risk group of patients are those with resected cerebellar parenchymal metastases in whom 10–36% subsequently develop NM [2–4]. This retrospective study determined outcome and in particular the occurrence of NM in 30 patients with resected cerebellar metastases (Group 1) and in 50 patients with cerebellar metastases treated with radiotherapy only (Group 2). Additionally, 10 patients with coincident cerebellar metastases and NM were identified (Group 3) and compared with these groups. This retrospective case series of 90 patients had one principal objective: to characterize the incidence of NM in patients with cerebellar metastases treated with either surgical resection or radiotherapy.

Methods

This was a retrospectively collected case series from three centers (the University of California, San Diego, CA; the

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