Intracranial metastases radiosurgery

see Brain metastases radiosurgery.

In those brain metastases patients of satisfactory performance status with a solitary lesion, especially one in a non-eloquent/accessible area causing significant mass effect and/or raised intracranial pressure or for whom the diagnosis is in doubt (histology needed), surgical resection is usually the treatment of choice. For multiple brain metastases, radiotherapy with or without systemic therapies is usually employed. For relatively fit patients with limited numbers of brain metastases (e.g., 4 or fewer), stereotactic radiosurgery is the standard of care. Current clinical trials are testing the efficacy of stereotactic treatment alone for >4 brain metastases (although it is increasingly used for such patients in many centers) as well as the integration of local therapies with targeted and immunological therapies in appropriately selected cases. In certain circumstances, cranial irradiation can be omitted [1].

Single-fraction stereotactic radiotherapy (SRT) is used to treat patients with good performance status and up to 4 lesions with a diameter of 30 mm or less that are distant from crucial brain function areas. Fractionated SRT (2-5 fractions) is used for larger lesions, in eloquent areas or in proximity to crucial or surgically inaccessible areas and to reduce treatment-related neurotoxicity. The single-fraction SRT dose, which depends on tumor diameter, impacts local control. Fractionated SRT may encompass different schedules. No randomized trial data compared the safety and efficacy of single and multiple fractions. Both single-fraction and fractionated SRT provide satisfactory local control rates, tolerance, and a low risk of transient acute adverse events and of radiation necrosis the incidence of which correlated with the irradiated brain volume [2].

Surgery has a key role in patients with an unknown primary, solitary site, large intracranial lesion, or with neurologic symptomatology due to associated vasogenic edema and mass effect. There is also a resurgence in interest in biopsy or resection in patients with actionable alterations with discordant responses to targeted therapy or those proceeding to immunotherapy to reduce corticosteroid requirements. Moreover, advancements in radiotherapy have led to several options in patients with resectable brain metastasis including postoperative whole-brain radiotherapy, postoperative stereotactic radiosurgery (SRS), preoperative SRS, and intraoperative radiotherapy, and CNS brachytherapy [3].

1)
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