Meningiomas are the second most common primary brain tumor and represent approximately 15 - 26% of all intracranial neoplasms, with an annual incidence rate of 6 per 100,000 population. Appropriate grading is of paramount importance, as non-grade I tumors are associated with less favorable clinical outcome and warrant usually more radical treatment. Approximately, 5 - 10% of these extra-axial tumours correspond to specific histological subtypes that are associated with less favorable clinical outcome. Although meningioma is traditionally regarded as being radio resistant, radiotherapy (RT) is an effective adjuvant treatment for meningioma. For WHO grade I meningioma, the timing of postoperative RT is controversial. As such, the EORTC conceptualized a postoperative phase III trial assessing the impact of RT on tumor control and quality of life for patients with non-gross total resection (Simpson ≥ 3) as documented on a MRI performed 1 months postoperatively. A targeted sample size of 478 patients was calculated and the protocol was activated in 2004. For non-benign meningiomas, most retrospective analyses have suggested a RT dose-response relationship. Considering its local recurrence pattern, one therapeutic strategy would be to administer a higher radical or adjuvant dose to the tumor. The EORTC has accrued patients in a phase II trial (22042-26042) of adjuvant postoperative high-dose radiotherapy for non-benign meningiomas. High-dose RT (70 Gy) is delivered to patients with incomplete (Simpson ≥ 3) resection. Importantly, the RTOG has also activated a comprehensive meningioma trial (RTOG 0539) in June 2009. After a registration step involving a prospective pathology review, patients were treated according to three-risk groups. The therapeutic strategy involves observation only, 54 Gy and 60 Gy for low (WHO grade I, any Simpson), intermediate (WHO II, Simpson ≤ 3; WHO I recurrent) and high-risk (all other) patients, respectively. In the future, the RTOG and CTU Liverpool-EORTC (ROAM-EORT 1308 study) are planning a phase III trial for Simpson ≤ 3 grade II meningiomas. The details of these trials and the review of radiotherapy techniques will be discussed during the presentation.

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