ESTRO 2023

Highlight on CNS cancer

Preoperative Stereotactic Radiosurgery for Brain Metastases: A Paradigm Shift?
Postoperative stereotactic radiosurgery (SRS), predominantly in the form of single fraction (SF) SRS, has been established as the standard care following the resection of brain metastases, providing significant benefits in cavity local control (1). Nevertheless, concerns about side effects such as radiation necrosis, the risk of meningeal spread of the disease, and the complexity of target volume delineation due to postoperative changes persist. Presently, ongoing trials are investigating preoperative SRS for brain metastases, aiming to address these issues.

One study presented at ESTRO 2023 by Revadhi Chelvarajah (2) was a single arm, single- center prospective observational study. Twenty-one participants were included receiving a preoperative SF SRS in median one day before surgical resection. MRI surveillance was performed every 2-3 months after the intervention. With a median follow-up of 14.7 months one local recurrence occurred, while there were no cases of meningeal recurrence, radiation necrosis or wound complications. The authors concluded that preoperative SRS is safe and demonstrates favorable outcomes.

This observational study represents a growing interest towards preoperative SRS for brain metastases. Very recently, R. S. Prabhu et al. (3) reported the results of a large multicentre cohort study comparing SF vs. multifraction (MF) SRS in the preoperative setting.
They performed a matched pair analyses of two cohorts of 81 patients each treated with either SF or MF SRS. It revealed a significant reduction in the risk of 2-year cavity local recurrence with preoperative MF SRS (3.3 %) compared to SF SRS (19.8 %, p=0.003). Additionally, there was a noticeable trend favoring MF SRS in a composite endpoint (cavity local recurrence, adverse radiation effect, or meningeal disease), 17.2 % vs. 32.9 % (p=0.09).

Current ongoing trials, such as PREOP-2 (S. Rogers et al., NCT05124236), are comparing postoperative SRS with preoperative SRS, with results anticipated in the coming years.
However, these two publications underscore the growing interest in preoperative SRS for brain metastases suggesting a potential shift in clinical practice in the next years.

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