RESULTS: The overall M5 was 17 months and 10.5, 11, 11, 14, 31, 31 and 16 months for patients with respectively 5, 6, 7, 8, 9, 10 and 11 to 21 BM. According histology, the M5 was 25, 9 and 18 months for patients with NR, SR and MR with respectively breast, melanoma and lung cancer. The number of BM is not a key factor for survival in patients with otherwise good prognostic factors.

CONCLUSIONS: The median survival of patients with more than 4 BM was 17 months and not influenced by histology such as breast, melanoma and lung cancer. The number of BM is not a key factor for survival in patients with otherwise good prognostic factors.

P13.15 MULTIFRACTION STEREOTACTIC RADIOSURGERY (MF-SRS) VERSUS SURGERY PLUS MF-SRS FOR PATIENTS WITH LARGE RADIRESISTANT BRAIN METASTASES G. Minutti1

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PURPOSE: Both surgery and radiosurgery (SRS) are frequently used in the initial management of patients with brain metastases. We have evaluated the local control and the radiation-induced brain necrosis in patients with large resistant brain metastases in size treated with MF-SRS (3 x 9 Gy) or surgery and globally to resorption cavity were analyzed. The primary end point of the study was the local control.

RESULTS: Between from March 2005 to June 2015, a total of 91 patients (MF-SRS, 46 pts; surgery + MF-SRS, 45 pts) were evaluated in this study. The median survival times were 13.2 months and 16.1 months in MF-SRS and surgery + MF-SRS groups, respectively (p = 0.03) and months. The 6-month and 12-month local control rates were 82% and 63% after MF-SRS and 91% and 83% after surgery + MF-SRS (p = 0.01), respectively; the 1-year incidence of new distant brain metastases were 53% and 45%, respectively (p = 0.1). Nine patients undergoing surgery + MF-SRS and 4 subjected to MF-SRS experienced brain radio necrosis (p = 0.1), as suggested by magnetic resonance imaging (MRI) and (F-DOPA) PET CT imaging. According to RTOG Common Toxicity Criteria, neurological grade 3 toxicities due to brain radio necrosis was similar between groups (MF-SRS, 2 pts; surgery + MF-SRS, 4 pts). For both groups, the target volume and the volumes of normal brain receiving doses of 18–21 Gy were predictive of radio necrosis.

CONCLUSIONS: For patients with large resistant brain metastases, surgery + MF-SRS is an effective treatment modality associated with better local control as compared with MF-SRS alone. These results need to be confirmed in prospective randomized studies.

P13.14 CHANGES IN PERFUSION MR IMAGING IN BRAIN METASTASES AFTER STEREOTACTIC RADIOTHERAPY

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INTRODUCTION: To assess the changes in perfusion-weighted (PWI) magnetic resonance imaging (MRI) in brain metastases after stereotactic radiotherapy (SRT), and to correlate these results with tumor response on conventional MR imaging.

METHODS: Serial MR imaging including PWI was performed on patients with brain metastases who received SRT between 2011 and 2013. These MR images were evaluated retrospectively at baseline (prior to SRT), 3 and 6 months after SRT. Size of metastases, size of surrounding edema and the relative cerebral blood volume (rCBV) were evaluated at each time point. The rCBV was assessed by subjective visual inspection of the rCBV maps in the contrast-enhanced area (visual method). The tumor responses of metastases were categorized into four groups based on changes in contrast enhancement on T1-weighted images during follow up or based on a histologically confirmed diagnosis: (1) tumor progression (TP), (2) pseudo-progression (PpPD), (3) non-progressive disease (non-PD) and (4) progression unspecified (PU).

RESULTS: The tumor responses of metastases were categorized into four groups based on changes in contrast enhancement on T1-weighted images during follow up or based on a histologically confirmed diagnosis: (1) tumor progression (TP), (2) pseudo-progression (PpPD), (3) non-progressive disease (non-PD) and (4) progression unspecified (PU). All metastases with an increase in size over time were categorized as non-PD. Metastases with an initial increase in size, but without a subsequent decrease in size, were categorized as PU. This group could include both PpPD and TP, which could not be further specified based on (missing) follow-up.

TP was defined as a decrease in size on T1WI after an initial increase of contrast enhancement of at least 5%. TP was based on a histological diagnosis.