CONCLUSION: In this study we validated both the M-GPA and Chowdhry OS score. The Chowdhry OS score proved to be the most accurate score to categorize patients with MBB in risk groups with corresponding survival. Statistically significant median overall survival time. Contrary to Chowdhry et al the follow-up time in our study was sufficient for the low-risk group to reach the median overall survival time which was 13 months.

P13.09 SURVIVAL AND RELAPSE OF BRAIN METASTASES AFTER COMPLETE RESECTION OF A SINGLE BRAIN METASTASIS WITHOUT POSTOPERATIVE WHOLE BRAIN RADIOTHERAPY - A RETROSPECTIVE STUDY
J. S. Gertsen1,2, L. Speet1,2, J. Gurguis1, J. E. C. Bromberg1, L. G. H. Dewit1, H. Thygesen1, J. W. Schouten2, W. R. Bouwknecht2, W. Booger1,2, D. Brandsma1,2
1Netherlands Cancer Institute/ Antoni van Leeuwenhoek Hospital, Amsterdam, Netherlands, 2MC Slotervaart, Amsterdam, Netherlands, 3Brain Tumor Center, Erasmus MC University Medical Center Cancer Institute, Rotterdam, Netherlands.

INTRODUCTION: In 2011, the EORTC 22952-26001 study showed that omission of postoperative whole brain radiotherapy (WBRT) after complete resection or stereotactic radiation for oligometastatic brain metastases (BM) does not decrease overall or functionally independent survival despite high intracranial relapse rates. Postoperative WBRT appeared to have a (transitory) negative impact on some aspects of health-related quality of life (HRQOL) in those observation with close monitoring. In this study we analyzed intracranial tumor relapses, overall survival and functionally independent survival in patients with a single BM who underwent a complete resection without postoperative radiotherapy (either whole brain or locally) in two Dutch cancer centers.

METHODS: Sixty-six patients treated between June 2011 and December 2014 in the Netherlands Cancer Institute – Antoni van Leeuwenhoek Hospital, Amsterdam and the Brain Tumor Center, Erasmus MC University Medical Center Cancer Institute, Rotterdam were evaluable. Complete resection was defined as macroscopic complete macroscopic complete resection and absence of tumor tissue on a postoperative contrast-enhanced brain MRI performed within 72 hours after resection. Follow-up brain MRIs were performed every 3 months, or earlier in case of new neurological symptoms. In case of an intracranial relapse BM, a multidisciplinary Neuro-oncology team decided on salvage therapy (radiotherapy, re-resection, systemic therapy or symptomatic palliative). Primary outcomes were overall survival and functionally independent survival. Secondary outcomes were intracranial local and distant recurrence of BM.

RESULTS: Twenty-five patients had lung cancer, 17 melanoma, 10 breast cancer and 14 patients other tumor types. Median overall survival was 13 months (95% CI: 9–16 months) and median functionally independent survival was 10.5 months (95% CI: 6.5–14.5 months). Local BM relapse rates were 2.8%, median time of 13 months (range: 1.5–21 months). Distant BM relapse rate was 53% with a median time to relapse of 9.5 months (range: 1–30 months). Forty-four percent of all local or distant brain relapses were symptomatic. Distant BM relapse from melanoma occurred significantly earlier than in other tumor types (median time 4 months, range: 1.5–14 months (p=0.005)). WBRT as salvage therapy for relapsed BM was given in 53% of all patients.

CONCLUSION: BM relapses and (functionally) independent survival in this retrospective study were similar to the EORTC 22952-26001 study. WBRT could be avoided in 67% of all patients. In melanoma patients, distant BM relapse occurred significantly earlier than in other tumor types.

P13.10 INTRACRANIAL RESPONSE TO NIVOLUMAB IN NSCLC PATIENTS WITH UNTREATED OR PROGRESSING CNS METASTASES
S. Yust-Katz1, E. Budnik1, E. Perlo1, A. Zer1, D. Flex1, N. Peled1, J. Siegal1
1Davidoff Cancer Center, Petach-Tikva, Israel, 2Rabin Medical Center, Petach-Tikva, Israel.

BACKGROUND: Central nervous system (CNS) metastases occur in about 30% of patients (pts) with advanced non-small cell lung cancer (NSCLC). Local treatment strategies (e.g., radiotherapy or surgery) result in poor local control, and are frequently complicated with neurocognitive impairment. Nivolumab is an anti-PD1 immune checkpoint inhibitor which has been recently approved by the FDA as a second line treatment of NSCLC. Data regarding its intracranial activity is lacking.

METHODS: We retrospectively reviewed efficacy and safety of nivolumab administered intravenously at a dose of 3mg/kg q2 weeks in five pts with advanced NSCLC and new or progressing intracranial metastases which were diagnosed before or within 1 month after starting the treatment.

RESULTS: Pt baseline characteristics were as follows: median age 78(range: 61–90); 2 males; 4 smokers; ECOG: PS 0/1/2 - 2 pts/1 pt/2 pts; histological subtype: adenocarcinoma/ squamous-cell carcinoma/NSCLC NOS 3 pts /1 pt/1 pt; EGF R WT/ALK neg/KRAS M all/all/all pts. Four pts had parenchymal brain metastases, three pts had leptomeningeal disease. All pts were symptomatic and did not have any history of brain irradiation. Dramatic response in the brain was observed in two pts (including 1 pt with leptomeningeal spread demonstrating a complete response in the CNS); time-to-response comprised 5 weeks and 9 weeks; all responses are still ongoing at the time of the report (18+ weeks). In one pt stabilization of leptomeningeal carcinomatosis for 10 weeks was achieved. Systemic responses and intracranial responses were largely discordant. No treatment-related or CNS-metastases related grade ≥ 3 adverse events were observed.

CONCLUSIONS: Nivolumab has a promising intracranial activity and favorable safety profile in pts with NSCLC and untreated/progressing CNS metastases. Nivolumab CNS activity warrants further evaluation.

P13.11 OUTCOME EVALUATION OF OLIGOMETASTATIC PATIENTS WITH SINGLE, LARGE BRAIN METASTASES TREATED WITH GROSS TOTAL RESSECTION (GTR) FOLLOWED BY HYPOFRACTIONATED STEREOTACTIC RADIOSURGERY (HSRS) ON THE TUMOR BED
P. Navarra1,2, G. F. Pesina1, A. Ascolese3, L. Cozzi1, S. Tomatis1, M. Riva1, C. Bello3, E. Clerici3, L. Lobefalo3, M. Scorsetti3,1
1Humanitas Cancer Center, Rozzano, Italy, 2Biomedical Sciences Department, Humanitas University, Milan, Italy.

INTRODUCTION: In case of large brain metastases (BMs), treatment option include whole-brain-radiation-therapy (WBRT), surgery, single dose radiosurgery (SRS) or Hypofractionated stereotactic radiosurgery (HSRS). None of these, when given as a single modality are able to obtain and maintain a local control rate. Therefore a combined approach, if feasible, is recommended. The aim of this study was to evaluate the benefit of a combined treatment, gross total resection (GTR) followed by hypofractionated stereotactic-radiosurgery (HSRS) on the tumor bed, in oligometastatic patients with single, large BM.

METHODS AND MATERIALS: From January 2011 to March 2015, 65 patients with single, large BMs, controlled primary tumor and extracranial disease were treated. All patients underwent gross total resection (GTR) followed by HSRS on the tumor bed with a total dose of 30 Gy in 3 daily fractions. Clinical outcome was evaluated by neurological examination and MRI 2 months after RT and then every 3 months. Local progression was defined as radiographic increase of the enhancing abnormality in the treated brain volume and brain distant progression (BDP) as the presence of new brain metastases or leptomeningeal enhancement outside the treated brain volume. Surgical morbidity and radiation-therapy toxicity, local control (LC), brain distant progression (BDP), and overall survival (OS) were evaluated.

RESULTS: The median preoperative volume and maximum diameter of BMS was 18.45 cm3 (range 4.06–64.23 cm3) and 3.6 cm (range 2.1–5.4 cm); the median clinical target volume (CTV) was 29 cm3 (range 4.06–203.10 cm3) and the median planning target volume (PTV) was 55.19 cm3 (range 17.18–282.90 cm3). The median follow-up was 24 months (range 4–33 months). The 1-and 2-year LC in site of treatment was 100%; the brain distant progression rate was 11% (95% CI: 6.8–17.5) at 2 years. The Chowdhury OS score proved to be the most useful tool to analyse the outcome, as it was able to stratify patients according to the number of BMs and their localization.

CONCLUSIONS: Multimodal approach, surgery followed by HSRS, can be an effective treatment option for selected patients with single, large brain metastases from different solid tumors.

KEYWORDS: brain metastases, surgical resection, hypofractionated-stereotactic-radiosurgery

P13.12 LONG TERM SURVIVAL OF PATIENTS TREATED BY GAMMA KNIFE RADIOSURGERY WITH A TOTAL OF 5 TO 21 BRAIN METASTASES
D. Devriendt1, C. Renier1, N. Massager2
1Institut Jules bordet, Brussels, Belgium, 2Gamma Knife center of ULB, Brussels, Belgium.

PURPOSE: To analyse the long term survival of patients treated by Gamma Knife radiosurgery (GKRS) with more than 4 brain metastases (BM).

METHODS AND MATERIALS: Between December 1999 and December 2007, we treated 88 patients with more than 4 BM by GKRS. We analysed the median survival (MS) according the number of BM (5 to 21) and histology (mainly lung, melanoma and breast cancer).

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