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Purpose or Objective: To evaluate the feasibility and effectiveness of combining radiofrequency (RF), cementoplasty (CP) and Radiotherapy (RT) for pain treatment of bone metastasis (mts) in oligo-metastatic patients (pts).

Material and Methods: From April 2015 to September 2015 twelve pts. (9 men, 3 women; median age 64 years) with 12 injuries to bones (vertebral column n = 9; femur, n = 1; sacrum, n = 2) were treated. Diagnosis of bone mts and then its treatment should be based on the combination of different elements: clinical evaluation, CT, MRI and nuclear medicine patterns. The mini-invasive treatment of oligo-metastatic pts aims pain relief that improving the quality of life; treat biomechanical stability of the spine; and an antineoplastic effect - cytoreductive. RF ablation was performed with the pts under sedation a CT - guidance, and was followed by cement injection. Pain relief was valuated with visual analogue scale (VAS) score. After 10 days on average, the patient was subjected to Stereotactic-RT or Volumetric Modulated Arc Therapy (VMAT) technique and a total dose of 20-30 Gy.

Results: Technical success and pain relief was archived in all pts. Pain rating with the VAS decrease from a mean of 9 to a mean of 4, and after 3 month was detected a mayor decrease (2,5). We recorded an overall improvement in the quality of life measured with a suitable test There was no particular toxicity. At present no patient died for progression of disease. The evolution of the disease will be evaluated with the use of MRI.

Conclusion: Our data showing the importance of a multi-disciplinary approach oligo-metastatic patients. RF with CP and RT carried out by experts is effective for pain relief and functional recovery in patients with painful bone metastases and can significantly improve quality of life.

EP-1438

Radiosurgery to the resection cavity of brain metastasis: Long term efficacy

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Purpose or Objective: Few phase II trials have been performed to analyse the efficacy of post-operative stereotactic ablative radiotherapy (SABR) for brain metastases. The aim of the present study was to analyse outcome of this strategy in another cohort.

Material and Methods: Between September 2011 and February 2015 a total of 49 patients (49 lesions) were treated and available for analysis. Eligibility criteria included histologically confirmed malignancy with 1 intra parenchymal brain metastase, age ≥18 years, Karnofsky performance status (KPS) ≥70 and controlled extracranial disease. Fourty-two patients have been treated with a single fraction of 18 Gy, and 7 patients with 5 fractions of 5-7 Gy (median dose of 31 Gy) if tumor size was more than 3 cm. SABR treatment was prescribed to the 80% isodose. Survival was evaluated with the Kaplan Meier method.

Results: The median follow-up was 14 months (range, 2-45). SABR to the surgical bed was performed 41 days (13-105) after surgery. Overall, there were 8 local failures (LF) resulting in a 6 months, 1- and 2-year local control rates of 97.9%, 86%, and 74.9%, respectively. The 1- and 2-year overall survival rates were 62.6% and 39%. The 6 months, 1- and 2-year encephalic control rates were 72.9%, 56.7%, and 34.6%, respectively. The Biological Effective Dose, histology,

and time interval between surgery and SABR did not correlate with LF in univariate analysis ($p > 0.05$, Log-Rank). Tumor maximal diameter >3 cm was associated with an increased rate of LF in comparison with smaller tumors (one-year rate LF of 30% vs 7.1%, $p=0.02$, Log-Rank). Seventy percent of patients died because of extra cranial disease progression while 30 % of patient because of intracranial disease progression. For 14 patients with multiple recurrent brain metastases, the whole brain radiotherapy was performed 294 days (126-812) after SABR.

Conclusion: In this cohort postoperative SABR was associated with high rates of local control and encephalic tumor control, especially for brain metastases <3 cm.

EP-1439

Percutaneous pedicle screw fixation for the treatment of unstable spinal metastases

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Purpose or Objective: Unstable spinal metastases require surgical stabilization often followed by radiotherapy for local tumor control. However, surgical stabilization and radiotherapy are not very compatible treatment modalities. A frequent complication of surgical stabilization after irradiation is disturbed wound healing which can have a devastating impact on quality of life. Advancements in surgical techniques has led to the development of less invasive surgical (LIS) procedures. LIS procedures aim to achieve similar clinical outcomes, as compared with open procedures, but with less approach related morbidity. Additionally, improved wound healing after LIS procedures may allow earlier administration of adjuvant treatments. However, little is known concerning the complications after LIS procedures for the treatment of spinal metastases. Therefore the aim of this study was to determine the incidence and characteristics of complications after percutaneous pedicle screw fixation (PPSF) for the treatment of unstable spinal metastases.

Material and Methods: An ambispective multicentre cohort study of patients who underwent PPSF between 2009 and 2014 for the treatment of unstable spinal metastases was performed. Data regarding demographics, tumor histology, surgical treatment, neurological status, complications and survival were systematically collected.

Results: A total of 101 patients were identified, 45 males and 56 females with a mean age of 60.3 years (± 11.2). The most common primary tumors (in hierarchical order) were breast cancer (25%), multiple myeloma (25%), lung cancer (13%) and renal cell carcinoma (10%). Ninety-three per cent of the patients were neurologically intact at the time of surgery. The median operating time was 122 minutes (range 55 - 325) with a median blood loss of 100 ml (N=41). The overall median survival was 11.0 months (range 0-70 months) with 79 (78%) patients being alive three months postoperative. Eighty-seven per cent of the patients was ambulatory within three days postoperative. A total of 30 complications occurred in 18 patients. Non-surgical adverse events (9%) were most commonly encountered. Wound complications occurred in 4 patients, including 2 deep wound infections with one requiring surgical debridement. Prolonged operating was associated with increased risk of post-operative complications ($P=0.041$). No relation between the administration of pre- or postoperative radiotherapy and the occurrence of complications could be determined.

Conclusion: A complication rate of 18% was found after less invasive surgery for the treatment of spinal metastases. Promising clinical outcomes were demonstrated in terms of minimal blood loss, high rates of early post-operative ambulation and few wound complications, which may allow earlier administration of adjuvant oncological treatments.

EP-1440

Tokuhashi Scoring and Karnofsky Scale: correlated with prognosis in spinal cord compression?

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Purpose or Objective: Functional evaluation is crucial in the approach of patients, and the most commonly used functional evaluation tool in cancer patients has been the Karnofsky Scale (KS). A KPS of less than 50% suggests a high mortality risk within 6 months. The Tokuhashi scoring system (TS) is a survival prediction in patients with spinal metastasis. For patients with total TS of 8 or less points, TS predicts a survival of 6 months or less. This study aims to compare KPS and TS for life expectancy in palliative patients with spinal cord compression.

Material and Methods: A sample of 79 patients with cord compression diagnosed from 2007 to 2014 was obtained by consecutive sampling, and KPS and TS were calculated for each patient. The analysis was performed retrospectively, with survival data registered until October 2014. Percentage of patients with KPS 50% and TS ≤ 8 are shown and compared with the survival percentage.

Results: With an average follow up of 4 months (range 0-45), 52.5% of the sample showed KPS ≤ 50% and 80.8% TS ≤ 8. At dead line, 10.3 % continued walking, 2.6 % needed wheelchair, 48.7 % died and 38.5 % were lost in follow up. For patients with follow up, 90% with TS ≤ 8 lived less than 6 months and 90% of patients with KPS ≤ 50% lived less than 6 months.

Conclusion: Both prognostic scoring systems show similar survival rates in groups KPS ≤ 50% and TS ≤ 8%, adding evidence to the Tokuhashi scale as a predictor of survival.

Electronic Poster: Clinical track: Elderly

EP-1441

IMRT in elderly woman with breast cancer: are comorbidities related to toxicity?

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Purpose or Objective: To investigate the feasibility, the tolerability and the impact of comorbidity assessment on the compliance of adjuvant Intensity Modulated Radiation Therapy (IMRT) and simultaneous integrated boost (SIB) in elderly patients with a diagnosis of breast cancer after breast-conserving surgery (BCS).

Material and Methods: Between 09/2011 to 02/2014, 40 consecutive women with a diagnosis of early stage breast cancer were treated with SIB-IMRT after BCS in our Institution. Inclusion criteria were: age ≥ 70 years, pT1 -2 disease, pN0-1, no neoadjuvant chemotherapy, non-metastatic disease. A dose prescription of 50 Gy in 25 fractions was prescribed to the whole breast (PTVbreast) and an additional dose of radiation on the tumour bed was prescribed (PTVboost). A dose prescription of 60 Gy in 25 fractions to PTVboost was used in patients with negative margins after surgery, whereas if the margins were close (< 1 mm) or positive (without a new surgical resection) a dose of 64 Gy was prescribed. Charlson Comorbidity Index (CCI) was used for comorbidity scoring. All patients were followed with

periodic clinical evaluation. Acute and late toxicity were scored using the EORTC/ROG radiation morbidity score system. Both patient and physician recorded cosmetic outcome evaluation with a subjective judgment scale at the time of scheduled follow-up.

Results: Median follow-up was 36 months. At the time of the analysis, OS and LC rates were 100%. All patients completed the SIB-IMRT without interruptions. Acute skin toxicity was recorded as follow: grade 0 in 5 patients (12.5%), grade 1 in 25 cases (62.5%), grade 2 in 10 patients (25%). Regarding late adverse events, skin toxicity was registered as follow: grade 0 in 27 patients (67.5%), grade 1 in 13 cases (32.5%). No toxicity ≥ grade 2 was registered. At statistical analysis, the presence of comorbidities and the breast volume > 700cc were related to skin grade 2 acute toxicity (p=0.01, p=0.04). In terms of cosmetic results, 98% and 2% of patients considered the result as good /excellent and as fair after RT, respectively. No patients had a poor cosmetic outcome.

Conclusion: These data support the feasibility and safety of SIB-IMRT in elderly patients with a diagnosis of breast cancer following BCS with acceptable acute and late treatment-related toxicity. Moreover, the absence of comorbidity reduced the risk of acute radiation side effects.

EP-1442

Oligometastatic colorectal cancer in elderly patients: role of stereotactic body radiation therapy

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Purpose or Objective: To report about clinical outcome of stereotactic body radiation therapy (SBRT) in the treatment of oligometastatic disease in elderly patients affected by colorectal cancer.

Material and Methods: Patients with 1-4 inoperable metastases were treated with SBRT. Dose prescription ranged from 40 to 75Gy in 3-8 fractions. SBRT was delivered using the volumetric modulated arc therapy technique with flattening filter-free photon beams. The primary end points were in-field local control (LC) and toxicity. Secondary end points were overall survival (OS).

Results: 52 patients with 57 total metastases were treated. Mean age was 79.85 years (range 73.57-88.56). 47 patients (90.4%) had a single lesion; the remaining had 2 lesions. 34 lesions (59.6%) were located in the liver, 18 (31.6%) in the lungs and the remaining 5 (8.8%) were nodal or adrenal metastases. Local response was observed for 35 lesions (61.4%), with 19 complete responses and 16 partial responses, while local progression in 18 lesions (31.6%); stable disease was recorded in 4 cases (7%). Actuarial 1, 2 and 3 year LC was 92%, 78 % and 71%. At time of analysis, with a mean follow up of 2.2 years (range 0.2-4.9), 38 patients (73.1%) were still alive, while 14 (26.9%) died (11 patients died for disease progression). Actuarial 1, 2 and 3 year OS were 98%, 89% and 61.1% respectively. Treatment-related Grade 2 toxicity was observed in two patients (3.8%); Grade 1 toxicity in five patients (9.6%) and no toxicity was observed in 86.6% of the cases. No G3-4 toxicity was recorded.

Conclusion: SBRT is a safe and effective therapeutic option for the treatment of oligometastatic disease in the elderly affected by colorectal cancer with acceptable rates of LC and low treatment related toxicity. The use of SBRT for oligometastatic disease in the elderly can be considered as a valuable approach, particularly for patients with fragile status or refusing other approaches.