

there is substantial evidence that palliative RT is effective with reported response rates varying from 50% to 100%, the optimal RT schedule is unclear. This study explores the current pattern of practice of palliative RT for bleeding tumors with regard to dose and fractionation schemes in the Netherlands.

Materials and Methods: An internet based survey, including respondent characteristics, factors influencing the choice of RT schedules, expected effectiveness of RT and five patient case scenarios on hematemesis, hemoptysis, hematuria, rectal bleeding and vaginal bleeding were developed and sent to all members (radiation oncologists and residents) of the Dutch Society for Radiation Oncology. Descriptive statistics were used to evaluate the results

Results: The response rate of the internet based survey was 125/374 (34%), and included 103 radiation oncologists and 22 residents, representing 20 out of 21 RT departments in the Netherlands. Factors that were most often reported with regard to influencing the chosen RT schedules were patient related factors, like performance status, prognosis, patient's comfort and patient's choice. Late toxicity and the availability of linear accelerators were less contributing to the chosen RT schedules. In the patient cases there was a wide range in preferred RT schedules, however the most often chosen schedules were: 1x 8 Gy for hematemesis (esophageal bleeding 37% 1x8 Gy and bleeding of the stomach 34% 1x8 Gy), 1x8 Gy and 5x 4 Gy (resp. 31% and 30%) for hemoptysis, 5x4 Gy (39%) for hematuria and 5x5 Gy (41%) in case of rectal bleeding. In case of vaginal bleeding 1x8 Gy, 5x4 Gy and 10-13x3 Gy all represented about 20% of chosen RT schedules. Brachytherapy was rarely chosen as the preferred technique. Most respondents expected a response rate of 70 to 80%, a quick response within a few weeks and a response duration lasting for several weeks to months.

Conclusions: There is a large range in RT schedules used for the treatment of bleeding tumors in the Netherlands. Most often a single fraction was chosen (35% of all cases), followed by a 5-fraction schedule (30% of all cases). The choice of an RT schedule was mainly influenced by patient related factors. Further research concerning the effectiveness of the various schedules is recommended.

EP-1290

Effectiveness of RT for metastatic spinal cord compression in patients with short life expectancy

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Purpose/Objective: Radiotherapy is an effective treatment for metastatic spinal cord compression (MSCC). It is unclear if it remains useful in patients with limited survival. This study analyzed the effect of radiotherapy for MSCC among patients with short life expectancy in an academic cancer center.

Materials and Methods: A prospective evaluation of all patients diagnosed with MSCC and estimated short life expectancy by the Rades prognostic score that were treated with RT was conducted between February 2013 and August 2014. Single 8 Gy fraction was recommended but the final decision to use multiple fraction was made by the treating

physician. Pain, ambulatory status and sphincter control were recorded before and after RT and related to outcome. Pain relief was evaluated following the International Bone Metastases Consensus Working Party Guidelines. Ambulatory status was evaluated with the Frankel scale. Presence of bone fracture and spinal instability (SINS score) were recorded.

Results: 56 patients were diagnosed with MSCC during this period and 44 were included in this analysis. 39% of patients had primary lung tumors and 52% had unfavourable histologies. 39% had bone fracture and spinal instability was present in 16%. 70% were treated with single 8 Gy fraction. 31% did not complete RT treatment in the non-8 Gy cohort. Median overall survival was 1,4 months. Before RT, the mean \pm sd pain intensity score was 7 \pm 2. The proportion showing a pain response in the 8 Gy cohort was 35%, 23%, 14%, 0% at 2 weeks, 1, 2 or 3 months post-RT while it was 15%, 0%, 0%, 0% in the non-8 Gy cohort. Towards death, pain intensity score decreased to 4 in responders (28%), whereas in non-responders no change was observed. 61% (8 Gy) vs 46% (non-8 Gy) were ambulatory before RT. Following RT, non-ambulatory to ambulatory state occurred in 10% (8 Gy) vs 18% (non-8 Gy), whereas ambulatory progressed to non-ambulatory in 7% (8 Gy) vs 18% (non-8 Gy). 68% (8 Gy) vs 46% (non-8 Gy) maintained sphincter control before RT. Following RT, non-preserved to preserved state occurred in 10% (8 Gy) vs 18% (non-8 Gy), whereas preserved progressed to non-preserved in 3.5% (8 Gy) vs 9% (non-8 Gy). Median survival was 1.9 (8 Gy) vs 0.8 (non-8 Gy) months for Rades group I, and 1.5 (8 Gy) vs 3 (non-8 Gy) months for Rades group II. 71% of patients in the 8 Gy cohort spent <5% of their remaining lifetime on treatment (81%, \leq 10%; 6%, \geq 25%) while 46% of patients in the non-8 Gy cohort spent \geq 30% (15%, $>$ 80%; 23%, \leq 10%).

Conclusions: Pain responded in about one third of patients diagnosed with MSCC and short life expectancy. When considering radiotherapy, single fractions should be preferred.

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Short course accelerated radiation therapy (SHARON) for complicated bone metastases: results of a phase ii study

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Purpose/Objective: Bone metastases are the most common cause of cancer pain requiring treatment. Radiotherapy (RT) is able to control symptoms up to 90% of cases. Many prospective and randomized trials have compared the effectiveness of shorter schedules in the treatments of

uncomplicated bone metastases. Actually, no evidence based recommendations are available for the treatment of complicated bone metastases. This study was conducted to evaluate the effectiveness in term of symptom control of a SHort course Accelerated RadiatiON therapy (SHARON study) in the treatment of patients with complicated bone metastases.

Materials and Methods: A phase II clinical trial was designed. Patients with complicated bone metastases, and Eastern Cooperative Oncology Group (ECOG) performance status ≤ 3 were included. Treatment was delivered in two days with a twice daily fractionation and at least an eight hour interval at 20 Gy (5 Gy per fraction). The primary endpoint was the assessment of efficacy in terms of pain relief.

Results: Characteristics of the 25 enrolled patients were: male/female: 14/11; median age: 65 years (range, 45 to 85 y). The site of the primary tumor was: lung (36%), breast (32%), prostate (12%), kidney (8%), rectum (4%), thyroid (4%), and uterus (4%). All patients had pain at the time of treatment. Three weeks after treatment, the response of pain was evaluated by visual analogue scale (VAS). 23 of the 25 symptomatic patients had improvement or resolution of pain based (overall response rate to the symptom: 92.5% CI 0.95: 68.68% - 99.13). Specifically, 8 patients (32%) had complete resolution of pain, 15 patients (60%) had a partial response and 2 patients (8%) remained stable. A statistically significant reduction in pain assessed by VAS, was recorded (pre-treatment vs. post-treatment mean VAS = 5.9 ± 2.6 vs. 2.7 ± 2.5 ; $p = 0.039$). Only 1 patient required retreatment at 12 months. In addition, 18 of the 25 patients (72%) showed improvement or stability ECOG. Only acute toxicities of grade 1 and 2 were recorded: skin G1 = 16%, hematological (anemia) G1 = 4%, gastro-intestinal G1 (diarrhea) = 4%, gastrointestinal (nausea and vomiting) G2 = 8%.

Conclusions: Short course accelerated radiotherapy of 20 Gy BID in two consecutive days is effective in term of symptoms relief. These results justify a phase III comparison against the standard-of-care in these patients' population (30 Gy in 10 fractions).

EP-1292

Stereotactic body radiotherapy for liver metastases in patients with oligorecurrence from variable tumor
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Purpose/Objective: Recent technology of diagnosis has increased prevalence of oligometastatic patients. Stereotactic body radiotherapy (SBRT) to oligometastases showed outstanding local control but also promising overall survival. Though liver oligometastases is a most common site for surgery, above 70% of these patients are unresectable. An effective and safe local modality option is necessary for these patients. We analyzed outcomes and toxicity for patients with liver oligometastases treated by SBRT from variable tumors.

Materials and Methods: Seventy-two patients with liver oligometastases from 2002 to 2013 were treated by SBRT consecutively. Among them, 17 patients excluded; un-

controllable distant metastases in 9 patients and immediate follow-up loss after treatment in 8 patients. A total of 55 patients with 77 lesions were analyzed retrospectively. Primary lesion of all patients was controlled, the patients with stable lesions in another site in 28 patients. The most common primary organ was colon in 36 patients followed by the stomach 6 patients, and other 13 patients. The tumor volume was calculated by sum of total GTV. The median volume was 20 cc (0.7-721.2 cc). Thirty-eight (69%) of the patients had a single metastatic lesion. Total SBRT dose was from 30 to 60 Gy (median 48 Gy) by 3-4 fractions. Thirty-nine (72%) of the patients received chemotherapy as part of their primary treatment. Toxicity was evaluated by Common Toxicity Criteria for Adverse Events Version 4.0 Grading scale.

Results: The 2 and 5-year overall survival rate was 56% and 20%, respectively. Actuarial 2 year local control and progression free survival rate were 60% and 22%, respectively. Grade 1-2 fatigue, nausea, and vomiting were the most common adverse events, and no grade 3 and higher adverse events were observed. By multivariate analysis according to survival, other visible lesion was a statistically significant factor.

Conclusions: SBRT for liver oligometastases seems to be safe. High SBRT dose is correlated with high local control. To obtain survival gain through SBRT among patients with oligorecurrence, criteria of optimal candidate is mandatory.

EP-1293

Single fraction radiotherapy (8 Gy) on painful bone metastases with involvement of the adjacent soft tissues
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Purpose/Objective: 8 Gy single fraction (flash) conventional external beam radiation therapy is the most commonly administered single fraction dose and is considered the standard treatment for uncomplicated bone metastases. However, its efficacy is uncertain in patients with bone metastases involving the adjacent soft tissues. Aim of the study was to evaluate the flash efficacy in terms of pain control for this particular patient setting.

Materials and Methods: An observational study of patients treated with Radiotherapy for bone metastases was conducted from January 2003 to December 2010 in our Department. The study included patients with painful bone metastases of any primary sites and any ECOG performance status < 4. Eight Gray single fraction conventional external beam radiation therapy (3DCRT) was administered. Patients were evaluated for pain with visual-analogue scale (VAS) before and 3 weeks after irradiation. Pain response was