PO-0728
Stereotactic Body Radiation Therapy for oligometastatic patients with ovarian cancer
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Purpose or Objective: Ovarian cancer is a gynecological malignancy characterized by a dismal outcome for its tendency to metastasize despite aggressive systemic therapies, commonly carboplatin and paclitaxel. Among recurrent ovarian cancer, patients with oligometastatic disease are supposed to have a better prognosis since they could benefit from local approaches besides chemotherapy, considering also the limited alternative regimens of systemic therapy. The aim of our study is to evaluate the role of stereotactic body radiotherapy (SBRT) in terms of LC and toxicity in a setting of patients with oligometastatic recurrent ovarian cancer.

Material and Methods: Between January 2011 and February 2015, 15 patients (20 lesions) with recurrent oligometastatic ovarian carcinoma of any histology underwent SBRT. Toxicity and tumor response was scored using Radiation Therapy Oncology Group/European Organization for Research and Treatment of Cancer Scale. Tumor response was evaluated by CT/PET, according to Response Evaluation Criteria in Solid Tumors.

Results: Median age at treatment was 60 years and median follow-up was 21 months. The sites of disease were abdomino-pelvic lymphnodes (13 lesions), liver metastasis (4 lesions), lung metastasis (2 lesions) and para-vaginal mass (1 lesion). The SBRT doses were prescribed based on dimensions of target volumes and organs at risk constraints as follow: for lymphnodal lesions the dose prescription was 36-45 Gy in 6 fractions and only one case treated with 40 Gy in 4 fr; for hepatic lesions 61.89 -75 Gy in 3 fractions, for the pulmonary lesions both cases received 48 Gy in 4 fractions meanwhile in the para vaginal recurrence dose prescription was 36 Gy in 6 fractions. None of the patients had grade 3/4 acute or late GU or GI toxicity. At a median follow-up of 21 months, local control was observed in 85%. Complete radiologic response, partial response and progressive disease were observed in 12 (60%), 5 (25%) and respectively 3 cases (15%).

Conclusion: SBRT is a feasible and well tolerated treatment approach in oligo-metastatic ovarian patients, offering a good local control. Certainly, additional patients and longer follow-up are necessary to confirm the impact of local treatment as SBRT in ovarian cancer therapy.

PO-0729
Hematological toxicity of Rth-Chth for cervical cancer: Rth technique and dose given to bone marrow
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Purpose or Objective: This is a concern about hematological toxicity (HT) of intensity-modulated radiation therapy (IMRT) technique combined with chemotherapy used in the treatment of gynecological malignancies due to the high volume of low radiotherapy doses given to bone marrow. We aimed to determine if pelvic IMRT increased HT and which dosimetric parameters were predictors of this toxicity.

Material and Methods: Ninety-nine consecutive cervical cancer patients treated with radio-chemotherapy (45-50,4Gy with Cisplatin 40mg/m²/week) between IX2011 and V2015 were included. Fifty patients received three-dimensional conformal radiotherapy (3D-CRT) (4-6 fields) and 49 IMRT with RapidArc. Target volumes were contoured in accordance with RTOG Atlas guidelines. Pelvic bone marrow was defined using a computed tomography density-based autotourning algorithm. HT was graded by Common Terminology Criteria for Adverse Events, version 4.0 criteria weekly during treatment. The rate of occurrence of grade III-IV HT (overall, anemia, thrombocytopenia, neutropenia, leucopenia) were evaluated in relation with radiotherapy technique, PTV, age, mean dose to bone marrow, volumes of bone marrow receiving 5, 10, 20, 30, and 40 Gy (V5, V10, V20, V30, and V40). The Chi2 test was used to compare HT for each studied parameter dichotomized at the median. Differences between IMRT and 3D-CRT technique were compared with U-Mann-Whitney test.

Results: Patients treated with IMRT had significantly lower V20, V30, V40, mean bone marrow dose, and PTV volume than 3-D-CRT patients (p<.00001 for each). The both techniques did not differ significantly in age of patients, number of chemotherapy cycles given, V5 and V10. Grade III-IV HT of any kind occurred in 52% of 3D-CRT patients and 30% of IMRT patients, p=0.03. Each evaluated threshold of dose given to bone marrow predicted significantly occurrence of HT. Larger PTV was not predictor of higher HT.

Conclusion: Pelvic IMRT decreased HT of radio-chemotherapy for cervical cancer in comparison with 3D-CRT by reduction of volume of doses >20Gy given to bone marrow. Even though a precise dose threshold for bone marrow dose was not determined, limitation of bone marrow volume defined automatically as bone in patients treated with radio-chemotherapy is warranted.

PO-0730
QOL after postoperative IMRT for cervical cancer: results from matched pair analysis with 3DCRT
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Purpose or Objective: Adjuvant intensity modulated radiotherapy (IMRT) for cervical cancer is associated with reduced late gastrointestinal toxicity (GI) however it’s impact on quality of life (QOL) is not known. The present matched pair analysis was performed to compare QOL between three-dimensional conformal radiation (3DCRT) and IMRT.

Material and Methods: From Jan,2011- Dec,2013 patients undergoing adjuvant or salvage radiation with 3DCRT or IMRT (with or without concurrent chemotherapy) and vaginal brachytherapy were included. Those who received systemic chemotherapy or extended field radiation were excluded. The study inclusion criteria also necessitated at least 1 year of follow up with QOL assessment, at least 2 time points. At follow up toxicity criteria was documented using CTCAE version 3.0 and QOL was measured with EORTC QLQ-C30 and Cx-24 module. The baseline characteristics of two cohorts were compared using chi-square test. Raw scores were converted into final scores using EORTC recommended conversion and linear mixed model was used to evaluate impact of time trends and treatment technique on QOL. A 10-point difference in QOL score and p0.05 was considered relevant and statistically significant. All data were analyzed using SPSS, version 20.0 and Graph pad Instat.

Results: A total of 64 patients were eligible. Postoperative IMRT and 3DCRT was used in 40 and 24 patients respectively. The baseline socioeconomic, disease and treatment related characteristics were well balanced in both groups rendering cohorts eligible for a matched pair analysis. At one year there was recovery in most of the QOL domains in both cohorts with objective scores reaching baseline levels. The

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Conclusion: Early results show improved functional scales and reduced symptom scales with use of postoperative IMRT when compared to 3DCRT. Further long term follow up is needed to clearly define the impact of IMRT on patient reported outcomes.

PO-0731

Quality of life of women after endometrial cancer: the role of the vaginal dilator

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Purpose or Objective: Pelvic radiotherapy (RT) provides good local control in women with endometrial cancer (EC), but may also cause substantial acute and chronic adverse effects, which in turn may reduce patients' (pts) quality of life (QoL).

Material and Methods: 293 pts who were treated with adjuvant pelvic RT for EC at our department between 2004 and 2012 were asked to fill in questionnaires regarding their QoL (EORTC QLQ-C30, EN24). Median follow-up was 6 years. 112 pts agreed to participate. 42 (38%) used the vaginal dilator (VD; group A) as prescribed, 62 (55%) did not use the VD (group B), 8 (7%) preferred not to answer this question. The values of the function and symptom scales of the ppts were statistically analyzed and compared between the two groups as well as compared with reported values of normal populations.

Results: The values of the function and symptom scales are generally lower in our pts compared to an age adapted normal population (NP). Pts reported statistically better values for sexual interest and sexual activity compared to NP (p<0.0001), while sexual enjoyment was significantly reduced (p<0.0001). Vaginal dryness and pain during intercourse (p<0.0001) were the leading complaints. Sexual interest and activity increased with age (p<0.005) in contrast to NP. Pts in group A were younger than in group B (p=0.016). Group A reported significantly less pain in the back and pelvis (p=0.005) as well as less muscular pain (p=0.013). Pts using VD for at least 1 year had better values for sexual interest (p=0.002) and sexual activity (p=0.013) compared to 1 year. Pts with vaginal brachytherapy (IVB) only had a better global health status compared to pts with additional external beam RT, while IMRT was better than 3D-conformal RT (p=0.0017). Pts with higher acute GI toxicity reported more chronic GI symptoms (p=0.002) with diarrhea (p=0.009), nausea/vomiting (p=0.032) as well as poorer social functioning (p=0.036). Pts with higher acute GU toxicity reported more pain during intercourse (p=0.044).

Conclusion: Pelvic RT substantially affects QoL even years after treatment. Women participating in our study were more sexually active than the normal population. Therefore sexuality is important for QoL in women after endometrial cancer, even at higher age. The vaginal dilator is capable of improving chronic pelvic pain, sexual interest and sexual activity when used longer than one year. Pts with higher acute toxicities also exhibit more chronic problems. IMRT seems to be beneficial for long-term QoL.

PO-0732
Predictive factors for inter-fraction uterine motion in definitive radiotherapy for cervical cancer

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Purpose or Objective: Uterine motion is a challenging issue in applying intensity-modulated radiotherapy (IMRT) for patients with cervical cancer. In this study we quantified the inter-fraction uterus movement during a course of definitive radiotherapy (RT) to determine the predictive factors affecting uterine motion.

Material and Methods: A total of 343 cone-beam CT (CBCT) scans from 43 patients who underwent definitive RT were analyzed retrospectively. The median age of the patients was 58 years (range, 34-85 years). The FIGO stages were as follows: IB1, 9; IB2, 6; IIa, 1; IIb, 12; IIIb, 10; and IIIA, 5. Cervical and corpus movement (mm) were measured for each direction (cranial [C], anterior [A], left [L] and right [R] for the uterine corpus; and A, posterior (P), L, and R for the cervix) by comparing planning CT and CBCT. The mean movement of each patient was analyzed according to the following factors: age; tumor stage; BMI; area of visceral fat in the umbilical plane, as assessed by CT; circumference of abdominal girth; history of abdominal surgery; uterine orientation (anteverted or retroverted); size of the uterus; tumor diameter; and tumor invasion to the corpus.

Results: The mean movement of the corpus was as follows: C, 5.8 mm (range, 0-29.0 mm); A, 5.2 mm (range, 0.3-37.7 mm); L, 2.4 mm (range, 0-10.6 mm); and R, 2.3 mm (range, 0.9-2.2 mm). The mean movement of the cervix was as follows: A, 3.2 mm (range, 0-11.4 mm); P, 2.4 mm (range, 0-12.5 mm); L, 1.5 mm (range, 0-9.2 mm); and R, 1.6 mm (range, 0-7.3 mm). There was a significant correlation between abdominal girth and anterior movement of the corpus (r=0.36 and p=0.029). Uterine movement to the corpus had a negative correlation with posterior movement of the cervix with marginal statistical significance (p=0.05).

Conclusion: The study demonstrated that abdominal girth and tumor invasion to the corpus were predictive factors of uterine motion during definitive RT for patients with cervical cancer.

PO-0733
Treatment response evaluation with ADCmean in cervical cancer patient treated with chemoradiotherapy

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Purpose or Objective: The aim of this study is to investigate the ADCmean of the primary tumor to evaluate their correlations with the recurrence and survival rates in patients with primary cervical cancer before and after definitive CRT.

Material and Methods: The data of 44 patients with histologically proven squamous cell carcinoma of cervix was retrospectively evaluated. All patients had multi-parametric pelvic MR imaging (CE-MRI and DW-MRI) and 18F-FDG PET/CT for initial staging prior to treatment and also multi-parametric pelvic MR imaging after treatment at our Institution between February 2009 and May 2014. ADC response was measured by the proportion of ADC changes between pretreatment and posttreatment ADC measured in DW-MRI. The patients were divided into groups based on the pretreatment and posttreatment ADCmean of the primary tumor cutoff values derived from the ROC curves.