Results: Pathological lymph node volume was on average 1.5 cm³ (range 0.1-44.9) and average total dose was 62.4 Gy EQD2 (range 51.0-69.1). At a median follow-up time of 28 months (range 3-64) five recurrences were diagnosed inside the PTV-E. One patient had multiple recurrences involving PTV-N, PTV-E, as well as distant metastases. Two of the node positive patients had recurrences in both PTV-E and outside in the PAN region. None of the 57 node negative patients experienced nodal recurrence in PTV-E. Nine patients (6%) recurred in PTV outside PTV-E without any other sites of recurrence. Four of these patients did not have nodal disease at time of diagnosis.

Conclusions: Both micro- and macroscopic nodal control in locally advanced cervical cancer is high with the currently used treatment schedules. Recurrences are mainly located outside the PTV in the PAN region. Due to the limited number of recurrences in boosted nodes it has not been possible to establish a dose response relationship.

PD-0438
Adjuvant volumetric modulated arc therapy with vaginal cuff simultaneous integrated boost in endometrial cancer
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Purpose/Objective: Volumetric Modulated Arc Therapy RapidArc® (VMAT) has shown to be able to maintain a good toxicity profile in pelvic irradiation (PRT). We present our experience in treating pelvis for post-operative endometrial cancer (EC) with VMAT and simultaneous integrated boost (SIB) on vaginal cuff in patients (pts) unable to receive vaginal brachytherapy (VB).

Materials and Methods: From September 2011 to December 2013, fifty consecutive pts, submitted to hysterectomy with bilateral salpingo-oophorectomy and pelvic lymphadenectomy for EC, were candidate to PRT and VB +/- chemotherapy, according to stratification risk category. All the pts recruited refused VB for logistic problems or because unable or not willing to receive such treatment. After a specific informed consent, a dose of 54 Gy to the pelvis and 66 Gy to the vaginal cuff in 30 fractions was delivered with SIB-VMAT technique. A 5 mm trans-vaginal probe and Magnetic Resonance Imaging were used to define vaginal cuff. All toxicity data were collected according to CTCAE v4.0; clinical outcomes were analyzed retrospectively.

Results: Median FUP was 36 months (range, 12 to 39 months). According to FIGO 2009, the most representative stages were: IIC (20% - 10/50), IIIC (28% - 14/50), IIIA (16% - 8/50), IIIB (6% - 3/50), IIIC (2% - 1/50), IIIb (28% - 14/50). The 2-year-OS and 2-year-LC were 96% and 100%. The 3-year-OS and LC were 96% and 87%. The median DFS was 25 months (range, 12-30). No vaginal-cuff recurrence was registered. The only two loco-regional failures were pelvic-LNs metastases. Acute GI toxicity was registered as follow: G0 in 6 pts, G1 in 26 pts, G2 in 18 pts. No case of toxicity ≥ G3 was observed. Acute GU toxicity was: G0 in 5 pts, G1 in 21 pts, G2 in 24 pts. No case of toxicity ≥ G3 was observed. No late moderate - severe GI or GU toxicities were reported. A statistical correlation was found between acute G2 GI toxicity with Intestinal Cavity (IC) dose-constraints V20 Gy ≥ 30% (p-value = 0.02), V20 ≥ 40% (p = 0.02), V30 ≥ 30% (p = 0.004) and with IC-Dmax ≥ 45 Gy (p = 0.001). Regarding GU assessment, the risk to develop G2 acute toxicity is 3 times higher with adjuvant chemotherapy (p = 0.07).

Conclusions: In EC pts unable to receive VB or refusing to receive this treatment, SIB-VMAT could be a viable alternative. The present analyses showed promising findings. Further prospective studies are advocated.
Purpose/Objective: Computerized Axial Tomography (CAT) scan assistance during planning Interstitial Brachytherapy (ISBT) with Oncentra based Inverse Planning and Simulated Annealing (IPSA) is used in different Institutes. ISBT has become an integral part for treatment of gynaecologic malignancies. This is an attempt to present the dose schedule used and analyse the outcome and radiation morbidity encountered.

Materials and Methods: An institutional prospective analytical study since May, 2012 to May, 2014 was undertaken. A total of 50 cases of FIGO stage IIB to IIB including 25 post operative cases of Ca. Cervix (42 Ca. Cervix and 8 Ca.Vagina) with 100 ISBT sessions using Martinez Universal Perineal Template (MUPIT) were done. Analysis was done in the month of Sept, 2014. All the patients underwent whole pelvis External Beam Radiation Therapy (EBRT) 4500 cGy in 25 Fractions, followed by midline shielding till total dose of 5040 cGy in 28 fractions @ 180 cGy per fraction, 5 days a week, with weekly Cisplatin 40 mg/m2 prior to ISBT. A gap of 7 to10 days was allowed after completion of EBRT before attempting ISBT. The anatomical relations with Uterus, Bladder, Rectum and Intestines were noted from pre implant CT Scan of the pelvis. Gap of 7-10 days between ISBT applications was allowed and dose ranged from 800-950 cGy per session. The dose to CTV, Urinary Bladder and Rectum is reviewed, with importance to Biological Equivalent Dose (BED). RTOG/ECOG criteria were used to analyse vaginal mucosal / bowel/ bladder early and late radiation morbidity. Results: There was only one case of hematuria following implant removal, and one case of rectal wall perforation was noted during the procedure. The mean dose to CTV D90 is 8.74Gy and 0.1cc, 1cc, 2cc of Bladder and Rectum were 8.01Gy, 6.75Gy, 6.29Gy and 7.36Gy, 6.49Gy, 6.02Gy respectively. The BED 8.74Gy for tumour is 85.8Gy (EBRT + 2 sessions of IBT) with homogeneity index of. With median follow up of 16 months (range 4-24 months) 3 patients had grade 3 vaginal mucosal toxicity, 5 patients had grade 3 toxicity of bladder and no grade 3/4 rectal toxicity noted. Conclusions: The procedure is well tolerated by the patients. There were no immediate post procedure complications. Total duration of the process from spinal anaesthesia to implant removal, and one case of rectal wall perforation was noted during the procedure. The mean dose to CTV D90 is 8.74Gy and 0.1cc, 1cc, 2cc of Bladder and Rectum were 8.01Gy, 6.75Gy, 6.29Gy and 7.36Gy, 6.49Gy, 6.02Gy respectively. The BED 8.74Gy for tumour is 85.8Gy (EBRT + 2 sessions of IBT) with homogeneity index of. With median follow up of 16 months (range 4-24 months) 3 patients had grade 3 vaginal mucosal toxicity, 5 patients had grade 3 toxicity of bladder and no grade 3/4 rectal toxicity noted. Conclusions: The procedure is well tolerated by the patients. There were no immediate post procedure complications. Total duration of the process from spinal anaesthesia to removal of template is within 3 hours. This study present the trajectory pre-planning seems to be clinically feasible resulting in accurate needle placement with superior dosimetric results compared to optimized IC plan.

PD-0441

Comparison of 18F-FLT PET and 18F-FDG PET in the radiotherapy treatment of cervical cancer

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Purpose/Objective: With about 500 000 new cases every year, cervical cancer is the fourth most common cancer affecting women worldwide, and still more than half of women die from the disease. There were 2783 new cases in Poland in 2012. Tumor volume and nodal involvement are prognostic of worse outcome. The purpose of this study was to characterize the parameter of the tumor of cervical cancer obtained from FDG-PET/CT and FLT-PET/CT imaging before radiotherapy treatment planning and to assess their influence on treatment decision.

Materials and Methods: 28 patients with histological confirmed cervical cancer (27 planepithelialane cancer, 1 clacocellare, 2pts with G1, 13pts G2, 3pts G3, 10pts G is not known) with FIGO stage II (12pts) and FIGO III (16pts) were enrolled in this study. The mean age was 52 +/-12 (SD) years. Routinely the patients have undergone blood analysis (hemoglobin and white blood cells level ) and vaginal bacteriology before treatment. They were examined with FLT PET and FDG PET.in years 2012-2014 with Gemini TF PET/CT scanner (Philips). PET scans were acquired on separate days (within one week) 60min after IV injection of 300MBq of 18F- FDG (F:con) and 300MBq of 18F-FLT (1ason). The same scan protocol and reconstruction algorithms were used for both scans. Based on MRI calculations and phantom studies a 43% threshold cut-off value was selected for metabolic GTV delineation and volume calculation. Metabolic parameters of the tumor, tumor volume and clinical parameters were assessed on every scan separately. Data were statistical analyzed using p<0.05.

Results: In all patients both tracers showed increased uptake in the primary tumor. The SUVmax and SUVmean were in general lower for FLT-GTV than FDG-GTV (7,3±2,18 vs 12,3±4,2; p<0.001 and 4,11±1,39 vs 6,9±2,39; p<0.001). However, in three patients SUV values for FLT-GTV were...