

survival(OS) at 3 years was 82% and at 5 years was 63%; IB2-IIB 5yr: 70%; III 5yr: 27% (p: 0.01); For pN0 5yrs 74%; pN+ iliac-paraortic 5yr: 45% (p: 0.03).

Dosimetric parameters: D90<6-7Gy(prescription dose) in 5p before 2011(since then interstitial implants were associated in 47%). The Local RFS: D90< 6Gy 87%, D90> 6Gy: 90% (p:ns); OS: D90< 6Gy 58%, D90> 6Gy: 67% (p:ns). D2cc-Sigma: 1.7-6.2 Gy (md 3.8 Gy); D2cc-rectum: 2-6.1 (md 4.2); D2cc-bladder 3.4-5.7 (md5.25).

Conclusion: Use of interstitial HDR-BQ guided by RM increased CTV-HR dose and local control, like EMBRACE results. Nodal boost improves RDFS and perhaps OS.

EP-1974

Application of the self-made applicator in brachytherapy for recurrent cervical cancer at vaginal

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Purpose or Objective: To elaborate the application of self-made applicator which invented by our department (Patent No: 201420583680.X) in brachytherapy for recurrent cervical cancer at vaginal residue. This study especially pays attention to the doses evaluation of GTV and the OARs in brachytherapy by this technical.

Material and Methods: 14 patients from 2013-2014 in our hospital who suffered from recurrent cervical cancer at vaginal residue in 0.5-3.5 years after radical hysterectomy and external beam radiotherapy (45 Gy/25 fractions) ±chemotherapy ±brachytherapy were treated with MRI based and ultrasound guided brachytherapy using the self-made applicator. The self-made applicator was made of silica balls in matrix distribution connecting with a hole in front and behind it, making it formed into a straight line. The diameter of silica ball is 1 cm, the aperture of the hole is 1.5 mm. Therefore this self-made applicator could provide with the needle inserting smoothly and tidy and the depth of the needle can be adjusted. Moreover, this applicator can be used by superposition of multilayer, so it could be easily adapted to any shape. The prescribed dose of brachytherapy was 7 Gy×3-6 fractions, one week apart was planned. The GTV included the tumor, the CTV comprised the GTV with a 10 mm circumferential margin and OARs were delineated. And then we recorded the GTV D90, D100 and D2cc of rectum, small intestines, bladder and sigmoid colon under the self-made applicator.

Results: After plenty years of using the conventional applicators in brachytherapy, we found the radical hysterectomy cause the vaginal cuff end stenosis, the top of the conventional applicator, such as the Utrecht interstitial applicator cannot get close to the cancer region well which tumor invaded towards pelvic, so it was unable to achieve a high dose to the tumor, or it may induce an excess dose to normal tissues. In this research, we found the self-made applicator showed a high GTV dose and an acceptable OARs dose. Specifically, the GTV D90 and D100 for using self-made applicator were 724±64 cGy and 436±39 cGy, and the average D2cc for rectum, sigmoid colon and bladder was 370±21, 265±16 and 423±44 cGy, the total dose when transformed to EQD2 models was under the constraints.

Conclusion: The self-made applicator show excellent dose parameters on dose coverage and sparing exposure to OARs, which was more beneficial to the recurrent cervical cancer at vaginal residue invaded towards pelvic.

EP-1975

18F[FDG]PET guided brachytherapy for carcinoma of the uterine cervix

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Purpose or Objective: Concomitant chemo-radiation and intracavitary brachytherapy (BT) is the standard treatment

for locally advanced cervical carcinoma. In an our previous experience we reported the feasibility of [18F]FDG-PET in the BT treatment planning as functional imaging technique able to visualize neoplastic tissue. The purpose of this analysis was to evaluate, after an adequate follow-up, the site of recurrence and, in case of local relapse, if it was PET positive during BT. Survival and the late toxicity were also analysed.

Material and Methods: From June 2007 to May 2010, thirteen women with locally advanced cervical carcinoma were enrolled into the study. All patients underwent external beam radiation therapy (EBRT) to whole pelvis (box technique to a total dose of 50.4 Gy) with weekly concomitant cisplatin chemotherapy. HDR BT was performed weekly (5 Gy per fraction; 5 to 6 fractions). All BT fractions were planned by CT scan and, in the first and in the fourth fraction, FDG-PET/CT was also employed. Local control rate, progression free survival, overall survival and treatment related toxicities under RTOG criteria were evaluated

Results: At the median follow-up of 61 months, the estimated 5-year progression-free survival (PFS) and the 5-year overall survival (OS) were 56% and 70% respectively. The 5-year local control rate was 84.6%. Only one patient had a local relapse corresponding to a PET positive area in BT guided planning. No G3-4 acute or late gastrointestinal or genitourinary toxicity has been recorded.

Conclusion: In our experience, PET in BT planning of the cervical carcinoma gives some added useful information. The main goal of our analysis remains to define the site of possible recurrence: the recognition of a local relapse in PET positive area may suggest the opportunity of dose escalation

EP-1976

Concomitant radio-chemotherapy and brachytherapy for advanced cervical cancer: outcomes and toxicity

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Purpose or Objective: To evaluate clinical outcomes and acute/late toxicities in patients with locally advanced cervical cancer treated with chemotherapy (CT) and external beam radiation therapy (EBRT), followed by high-dose rate brachytherapy (HDR-BRT) delivered with the Fletcher-Williamson tandem and ovoid applicator

Material and Methods: we evaluated 40 patients, median age 57 years (range 40-83), treated between January 2007 and October 2014. According to FIGO classification, 10% were stage IB, 7,5% IIA, 45% IIB, 5% IIIA, 27,5% IIIB, 5% IV. All patients underwent pelvic +/- paraaortic EBRT (10/40 patients); following the GEC-ESTRO recommendations, fractionation scheme for pelvic irradiation was 45-50.4 Gy in 25-28 daily fractions (1.8 Gy/fr). The addition of a parametrial boost (10 Gy in 5 daily fractions) was performed in 10/40 patients (25%). BRT with Fletcher applicator was performed in all patients after EBRT, with the fractionation scheme 22,5 Gy in 5 fractions (twice a day with 6 hours inter-fraction interval). Concomitant CT was administrated in all patients, neoadjuvant CT was administrated in 15%. Treatment related toxicity was evaluated weekly during therapy and at each follow-up control, using RTOG/EORTC Radiation Morbidity Criteria. Response was investigated with periodical cervical cytology and CT scans; every treatment was evaluated in terms of BED10 and EQD2, with a median BED10 of 90.43 Gy (range 75.5-104.1) and median EQD2 of 75.33 Gy (range 86.7-62.9).

Results: With a median follow-up of 30 months (range 12-87), we observed acute/late genitourinary and gastrointestinal toxicity ≥ grade 2 in 10% of patients, including one G4 GI acute toxicity (diarrhea requiring parenteral support)