

EP-2012

Are there differences in quality prostate indicators among 9-Gy vs 15-Gy HDR brachytherapy boost?

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Purpose or Objective: The dose coverage in patients diagnosed with high risk prostate adenocarcinoma with seminal vesicles affection don't suppose any problem in dose escalation with HDR Brachytherapy. But we wonder if the quality prostate implant indicators will show any differences between standard patients (15-Gy HDR) and those with seminal vesicles affection(9-Gy HDR). To evaluate it, a multivariate analysis has been performed in our Radiation Oncology Department

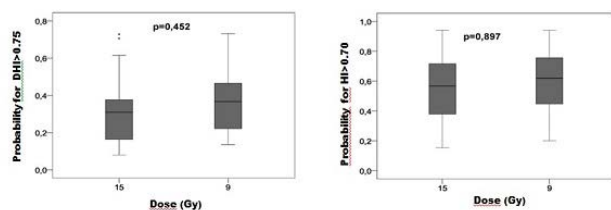
Material and Methods: 120 patients with high risk prostate adenocarcinoma were selected for the study and divided into two groups. The treatment schedule was external beam radiotherapy plus high dose rate brachytherapy as a boost:

- Group A: 9-Gy boost - T3b high grade (seminal vesicles affection) 46-Gy to pelvic areas, up to 60-Gy in prostate and seminal vesicles (2-Gy per fraction) daily and 9-Gy HDR to prostatic gland and 1-2cm. of proximal seminal vesicles.

- Group B: 15-Gy boost - High grade (no seminal vesicles affection)46-Gy to pelvic areas (2-Gy per fraction) daily treatment and 15-Gy HDR to prostatic gland.

Volumetric Modulated Arc Therapy (VMAT) was the selected technique for external radiotherapy delivered in a Varian DHX Clinac (Varian, Palo Alto, Ca.) with Millennium 120-MLC. Brachytherapy was performed with VariSource iX afterloader (Varian, Palo Alto, Ca.). The aim is to demonstrate whether there are any differences in both groups for dose homogeneity index (DHI) and homogeneity index (HI). A multivariate analysis was developed using as variables three of prostate (PTV volume, D90, D100), two of urethra (Dmax, D10) and two of rectum (Dmax, D10).

Results: The multivariate analysis for both groups shows a p-value of 0.452 to obtain the probability for DHI > 0,75 and a p-value of 0.897 to obtain a probability for HI>0.70. In Figure 1, the plots of the results are presented:



Conclusion: According to dose homogeneity, the analysis states that there were no significant differences for both studied groups. These results suggest the possibility of increasing the boost dose in T3b patients

EP-2013

Single fraction HDR BT boost using ultrasound plng for prostate cancer: dosimetrics and toxicity

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Purpose or Objective: To validate the feasibility of a single-fraction High Dose Rate Brachytherapy (HDRBT) Boost for prostate cancer using real-time Transrectal Ultrasound (TRUS) based planning.

Material and Methods: From August 2012 to September 2015, 113 patients underwent a single-fraction HDRBT boost of 15 Gy using real-time TRUS based planning. External beam radiation therapy (EBRT) (37.5 Gy/15f or 44Gy/22f or 45Gy/25f) was performed before (30%) or after (70%) HDRBT

boost. We analyzed prostate, urethra and rectum dosimetrics data. Genito-Urinary (GU) and Gastro-Intestinal (GI) toxicity were assessed 4 and 12 months after the end of combined treatment using the International Prostate Symptom Score Scale (IPSS) and the Common Terminology Criteria for Adverse Events (CTCAE) v3.0.

Results: Prostate D90 between 105% and 115% was achieved for 99% of patients, prostate V150 40% for 99%, prostate V200 < 11% for 96%, urethra D10 <120% for 99%, urethra V125=0% for 100% and rectum V75<1cc for 95% of patients. Median IPSS score was 4 at the baseline and didn't change at 4 and 12 months after combined treatment. No patients developed ≥ grade 2 GI toxicity. With a median follow-up of 10 months, only two patients experienced biochemical failure. Cumulative percentage of patients with PSA ≤ 1 at 4 and 18 months was respectively 47% and 74 %.

Conclusion: Single-fraction HDRBT boost of 15 Gy using real-time TRUS based planning in combination with EBRT is a safe treatment with promising results. A longer follow-up is needed to assess long-term outcome and toxicities

Electronic Poster: Brachytherapy track: Anorectal

EP-2014

Retrospective analysis of interstitial brachytherapy in gynecological and digestive tumours

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Purpose or Objective: The aim of this study was to evaluate the acute and late toxicities and disease-specific and overall survival after interstitial brachytherapy for the treatment of gynecological and digestive tumors.

Material and Methods: A retrospective study was carried out on a series of 19 patients referred for interstitial brachytherapy in our center between 2008 and 2013 with histologically proved locally advanced or recurrent gynecological malignancies and digestive tumors. Patients with distant metastases were excluded. Treatment consisted of brachytherapy alone (5p) (gynecological recurrence and anal carcinoma), or after surgery (1p) (rectal carcinoma) or after surgery and radiochemotherapy (4p) or after radiochemotherapy (9p). The radiochemotherapy with cisplatin-based chemotherapy regimens. Previously, recurrent patients (4p) were been treated with radiotherapy with or without concurrent chemotherapy. Medium dose of external beam radiotherapy was 51,7 Gy (range 45-70 Gy) followed by interstitial brachytherapy median implant dose 22,3 Gy (range 9-38,5Gy). Inclusion criteria were as follows: Hb minimum 10gm/dl and performance status 70% or more.

Results: Median age was 59 years (range 36-82). With a median follow-up of 14 months, local control was achieved on clinical examination or magnetic resonance imaging 93,8% patients. Among 19 patients studied, 3 lost follow-up and they were excluded from late toxicities and survival analysis. Eleven of the 19 patients (57,9%) experienced Radiation Therapy Oncology Group (RTOG) grade I or II acute toxicities proctitis (36,3%), cystitis (81,8%) and epithelitis (18,2%). Not acute toxicities grades 3 or 4 were reported. Two of the 16 patients (12,5%) experienced RTOG grade I or II late toxicities proctitis (6,25%) and cystitis (6,25%). Two of the 16 patients (12,5%) experienced RTOG grade III or IV late toxicities rectal ulcer (6,25%) and vulvar necrosis (6,25%). Using Kaplan-Meier analysis overall survival after minimum follow-up of 14 months was 93% and disease-free survival was 75% (persistent tumor were included in this group). One patient had a locoregional recurrence and died of tumor.

Conclusion: Interstitial brachytherapy is a good choice to deliver high-dose radiation in gynecological tumor after external beam radiotherapy or as an exclusive treatment in