Neoadjuvant Radiotherapy for Rectal Cancer: a retrospective analyses.

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Conclusion
Clinical and pathological outcomes for rectal cancer patients treated with neoadjuvant radiochemistry were described. Distant relapses remain a major problem for these patients. Prospective clinical trials are warranted to define population subgroups that need an intensified scheme of treatment.

Introduction / Purpose
Radiation therapy plays an important role in the Rectum cancer local control, as already demonstrated in several randomized studies. Historically, the technique used was based on bone limits for the definition of treatment fields. The introduction of a three-dimensional technique brought more accurate anatomical knowledge plus the ability to analyze the coverage of target volumes and to optimize the treatment plan individually.

The objective was to evaluate clinical and pathological outcomes in the neoadjuvant radiochemistry in rectal cancer in patients treated in Barretos Cancer Hospital (BCH).

Methods
This was a uni-institutional cohort study with retrospective data collection, through direct analysis of patient’s medical records, who were diagnosed with rectal cancer and treated with neoadjuvant chemoradiotherapy at the BCH from 2007 to 2013. The institutional protocol for clinical staging of rectal cancer is performing pelvic MRI and Thoracic CT for all patients. All patients included in this study have performed the neoadjuvant radiochemistry. Chemo is performed in two 5-day courses during the first and fifth weeks of radiotherapy. Fluorouracil is given at a dose of 350 mg per square meter of body- surface area per day, and leucovorin at a dose of 20 mg per square meter per day. In relation to radiotherapy, all patients were simulated in prone position regardless to the technique. In both 2D- and 3D-protocols, the dose is 45 Gy in 1.8 Gy fractions in the first phase and 3 fractions of 1.8 Gy to a total dose of 50.4 Gy to the tumor. Acute and late therapy-related complications, including genitourinary (GU), gastrointestinal (GI) and dermatitis, scored according to the Radiation Therapy Oncology Group (RTOG) toxicity criteria. Were analyzed the rate of pathological complete response, Local Control- LC, Regional Control- RC, Distant Control- DC and Overall survival – OS and the median time for local relapse, regional relapse, distant relapse and any relapse. Survival curves were described by the Kaplan-Meier method. The time was estimated from the start of radiotherapy to relapse - this is the event of interest - or even the latest information (censorship). The curves were compared by the log-rank method. For all variables a significance level was set to 0.05 or less.

Results
Data from 255 patients were evaluated: 189 treated in 2D and 66 in 3D technique. The dose was 50.4 Gy in all cases and always for neoadjuvant purpose. There was no difference between these 2D versus 3D patients with respect to clinical T stage (p = 0.503) and N (p = 0.659) and pathological T stage (p = 0.426) and N (p = 0.713). The median FU time was 31.6 months.

There were 48 complete responses (18.8%), 36 (19%) complete responses in the 2D and 12 (18.2%) in 3D group (p = 0.87). The pathological down-staging “T” occurred in 57.6% of patients treated with 3D technique and 63.3% in those treated with 2D (p = 0.383) technique. Genitourinary (GU), gastrointestinal (GI) and dermatitis toxicities had no difference in both groups.

In 1-year of follow-up, the median LC was 97.8%, the RC was 98.6%, the DC was 92.5% and the OS was 92.3%.

In 3-years of follow-up, the median LC was 98%, the RC was 96.9%, the DC was 81.4% and the OS was 78%.

In 5-years of follow-up, the median LC was 93.9%, the RC was 94.8%, the DC was 77.7% and the OS was 74.1%.

The median time for local relapse was 33.7 months, 34 months for regional relapse, 31.4 months for distant relapse and 31.2 months for any relapse.

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