

CyberKnife (CK) for prostate cancer patients – early results of 400 patients radioablation

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Background: Prostate cancer (PC) is one of most common malignancies. Large percentage of PC patients is treated with radiotherapy (RT). The main problem connected to conventional radiotherapy is long overall treatment time (OTT) ranging to 8 weeks, so many attempts of OTT shrinkage are done. The one of them is CyberKnife based radioablation allowing to complete the therapy within 5-9 days.

Purpose: The aim of this study was an evaluation of the toxicity and early effectiveness of prostate cancer patients CK based radioablation.

Material/methods: 400 PC patients (212 low risk group [LR], 188 intermediate risk group [IR]) aged from 53 to 83 (mean 69) irradiated with CK every other day (fd 7.25Gy, TD 36.25Gy, OTT 9 days). Before the treatment, maximal PSA varied from 2.02 to 19.53 (mean 8.36) and T stage from T_{1c} to T_{2c}. Mean prostate dimensions were 42.8x37.2x40.6mm. FU ranged to 47.2 months (mean 11.1).

Directly after the treatment, 1, 4, 8 months later and the next every 6 months, the percentage of patients with Androgen Deprivation Therapy (ADT), GI (gastro-intestinal) and GU (genito-urinary) toxicity (acute up to the 4th month and the next late) using the EORTC/RTOG scale and PSA concentration were checked.

Results: The percentage of patients without ADT increased from 41.3% to 100% 32 months later. The maximal percentage of acute G3 adverse effects was 0.4% for GI, 0.5% for GU and G2 – 1.6% for GI and 5.5% for GU. No G3 late toxicity was observed. The maximal percentage of late G2 toxicity was 0.5% for GI and 3.0% for GU. PSA median decreased from 2.2 to 0.2 ng/ml during FU. One patient (LR) relapsed (18 months after RT- next treated with salvage BT and ADT) and one (IR) developed metastasis in lymphatic node (treated next with salvage CK and ADT).

Conclusion: The results obtained permit us to form the conclusion that CK based radioablation of low and intermediate risk PC patients is an effective treatment modality enabling OTT shrinkage and giving a very low percentage of adverse effects.