

**PP-17**

**Detection of radiorecurrent prostate cancer using diffusion weighted MRI and targeted biopsies**

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**Objective:** The primary purpose of this study was to evaluate the detection rate of local radiorecurrent prostate cancer by using diffusion weighted (DW) magnetic resonance imaging (MRI) and targeted biopsies. The secondary purpose was to assess the value of performing random biopsies.

**Material & Methods:** This study included 42 consecutive patients with biochemical recurrence after external beam radiation therapy (EBRT). At the time of biopsy, the mean age was 67±6 years, median prostate specific antigen was 4.0±3.0 ng/ml, and mean 5.6±2.8 years had elapsed between EBRT and biopsy. The MRI examination included high-resolution axial T2 weighted- and DW sequences, and was classified as either negative or positive. Transrectal ultrasound guided targeted biopsies were obtained from all patients with a positive MRI using a soft-image fusion system. Random sextant biopsies were obtained from both lobes in patients with negative MRI, and from the contralateral lobe to the MRI target in patients with positive MRI. The biopsy results were classified as negative or positive and defined as the gold standard.

**Results:** MRI was positive in 40/42 (95%) patients and the overall positive biopsy rate was 33/42 (79%). The targeted biopsies were positive in 33/40 (83%) patients. Random biopsies were positive in 6/30 (20%), all found in patients with positive targeted biopsies.

**Conclusion:** DW MRI is highly sensitive for detecting radiorecurrent prostate cancer, and a few targeted biopsies may confirm a positive diagnosis. However, random biopsies may assess the tumor burden more exactly.