



THIS IS WHERE IDEAS BLOOM.

BE A PRESENTER AT RSNA 2022!

RSNA® 2022  
NOVEMBER 27-DECEMBER 1



[Print this Page for Your Records](#)

[Close Window](#)

**Control/Tracking Number:** 2022-SP-13284-RSNA

**Activity:** Scientific Presentations

**Current Date/Time:** 5/4/2022 9:40:33 AM

**Early Toxicity and Diffusion-Weighted MRI Assessment after Single-Dose Ablative Radiation Therapy for Unfavorable Prostate Cancer**

**Author Block:** R. LUCCHINI<sup>1</sup>, D. G. Gandola<sup>2</sup>, V. Faccenda<sup>3</sup>, C. R. Talei Franzesi<sup>4</sup>, D. Panizza<sup>3</sup>, S. ARCANGELI<sup>5</sup>;

<sup>1</sup>ASST MONZA, MONZA, ITALY, <sup>2</sup>Bellagio, ITALY, <sup>3</sup>ASST Monza, Monza, ITALY, <sup>4</sup>Milan, MI, ITALY, <sup>5</sup>University of Milan Bicocca, Milan, ITALY.

**Abstract:**

**\*Purpose:** To investigate diffusion-weighted (DWI) MRI changes and early gastrointestinal (GI) and genitourinary (GU) side effects in patients with organ-confined unfavorable prostate cancer (PCa) following Single-Dose Ablative Radiation Therapy (SDART).

**\*Methods and Materials:** Ten patients included in the prospective clinical trial "ABRUPT" (NCT04831983) were treated with a single fraction of 24 Gy to the whole prostate with urethra sparing in association with androgen deprivation therapy (ADT) as per standard of care. Treatment was delivered on linac platform with a Volumetric Modulated Arc Therapy (VMAT) and a real-time organ-motion electromagnetic tracking system. Multiparametric MRI was performed before SDART (time 0), one-hour post-SDART (time 1), and 3-month after treatment (time 2). Acute toxicity was evaluated with Common Terminology Criteria for Adverse Events version 5 (CTCAE\_v5) scale. IPSS score and quality of life (QoL) metrics assessed with EORTC questionnaires QLQ-PR25/-C30 were also measured.

**\*Results:** Median age was 76 years (range 62-82). Median prostate volume was 35.4 cc (range 10-59). At 3-months follow-up none of the patients experienced GI toxicity, while GU side effects were observed only in three patients (two G1 and one G2). Median IPSS score decreased from 6 (range 2-8) at baseline to 5 (range 2-17) 3 months after treatment. At the same timepoints no significant changes in EORTC-QoL score were documented. An increase of ADC value of tumor lesion by about 26% (range 7%-66%) and 51% (range 21%-81%) was registered at time 1 and time 2 respectively, compared to the baseline. Median prostate volume was found unchanged at time at time 1, while decreased by about 25% (range 9%-59%) at time 2. At last follow up all patients were found bNED, and four of them had a complete response.

**\*Conclusions:** SDART irradiation of the whole prostate with urethra sparing was feasible and well tolerated. Our findings showed a correlation between early changes in ADC values after SDART and later tumor response in patients with unfavorable PCa. Long term results are needed to confirm whether DWI can be used as an early biomarker of treatment outcome in this setting.

**\*Clinical Relevance/Application:** DWI provides spatial maps of quantitative metrics which result in early biological alterations that have the potential to check the treatment response and predict the treatment outcome in high-risk PCa far in advance than the clinical and biochemical outcome.

**Category (Complete):** Radiation Oncology -> ROGU - Genitourinary

**Format Preference (Complete):** Oral Paper

**Questions (Complete):**

**Trainee Research Prize:** Not Applicable

**Disclosure of "Off-Label" usage:** No, I do not intend to discuss off-label uses

**IRB / IACUC Response:** Human subject and in accordance with Declaration of Helsinki

**Has this work been previously presented or published?:** No

**Attached Files:** No Files Attached

**Status:** Complete

 Feedback