Initial Single-Center Experience with MRI-Guided TULSA-Pro for Localized Prostate Cancer: Early Oncologic Outcomes and Learning Curve

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Introduction and overall goal: MRI-guided transurethral ultrasound ablation (TULSA-Pro) is an emerging focal therapy modality for localized prostate cancer (PCa). Although prospective studies have shown favorable oncologic and functional outcomes, data on institutional implementation and the associated learning curve remain limited. We evaluated our initial experience with TULSA-Pro, focusing on oncologic outcomes and changes in treatment efficacy over time.

Methods and materials: We retrospectively analyzed patients with localized PCa treated with MRI-guided TULSA-Pro at our institution from 2021 as part of prospective clinical trials. Patients underwent whole- or subtotal-gland ablation, with protocol-mandated prostate MRI and biopsy at 12 and 24 months after a. Clinically significant recurrence was defined as Grade Group ≥2 disease on follow-up biopsy. Freedom from recurrence (FFR), retreatment-free survival, and salvage treatment rates were evaluated.

Results: Sixty-five patients with at least one follow-up biopsy were included. The median follow-up was 24.1 months (IQR 14.9–32.9). Clinically significant recurrence occurred in 17 patients (26%), with 9 detected at 12 months and 8 at 24 months. Retreatment-free survival was 80%. Eight patients underwent definitive salvage therapy (radical prostatectomy, n=1; radiation therapy, n=7), corresponding to an 88% salvage-free survival. Five additional patients underwent repeat focal ablation. Treatment efficacy improved with increasing institutional experience, with FFR increasing from 60% in the first 20 cases to 75% in the next 20 and 84% in the final 25.

Conclusions: Our early institutional experience demonstrates oncologic outcomes comparable to those reported in published TULSA-Pro series. Increasing operator experience was associated with improved cancer control. Technical factors encountered during implementation, including prostate swelling requiring repeat assessment, intraprostatic calcifications that limited efficacy, and lesion location necessitating applicator repositioning, were important determinants of treatment success. Recognizing these factors may shorten the learning curve and improve oncologic outcomes for centers adopting TULSA-Pro.