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Commentary

State of Focal Cryoablation and Single Institution Experience

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DESCRIPTION

Whole gland treatment of the prostate has known efficacy in treating many grades of prostate cancer. Treatment of the whole gland results in significant morbidity, including erectile dysfunction and urinary incontinence, adversely affecting the patient's quality of life [1]. Focal ablative therapies, including Focal Cryoablation (FC), are utilized to minimize the risk of tumor progression and preserve erectile and urinary function. Early reports of focal therapy for Prostate Cancer (PCa) were published as early as 2002; however, with the use of multi-parametric MRI, there has been a resurgence of interest in focal therapy [2]. A more recent 2018 study suggested that only 38% of patients are possible candidates for focal therapy due to their histologic profile and in this select group, a maximum of 4+3 Gleason Score or Gleason Grade Group (GGG) 3, with or without foci under 4 mm at a score of Gleason 6 are possible candidates [3]. Eastham JA et al., characterize the current AUA/ASTRO guidelines in their recent study and determine that prostate ablation should be utilized primarily in patients with intermediate-grade cancer. Clinicians should not suggest focal ablation for patients with high-risk PCa outside a clinical trial [4]. Other studies suggest that the efficacy of cryoablation is independent of DNA ploidy type or cellular differentiation [5]. There is little to no consensus on whether high-risk prostate cancer should be treated with focal therapy. In other words, focal therapy has often only been recognized as a treatment for intermediate or low-grade cancers.

From 2008 to 2020, 163 T1c patients underwent focal, hemi-gland or partial gland cryoablation of the prostate. These selected patients were offered FC as an alternative to more aggressive treatments such as total gland treatment with prostatectomy, radiation therapy or total cryoablation. The criterion for selection in this patient cohort was men with confirmed organ-confined disease, any GGG, a negative metastatic result, and for whom preservation of erectile function and preventing urinary incontinence was a major goal. All patients underwent transrectal or a transperineal template saturated biopsy and all samples were submitted in their entirety for standard pathologic analysis and histological mapping to determine GGG, pathological stage and exact location of cancer. The primary outcomes of this study are Biochemical Recurrence (BCR). Secondary outcomes include patient side effects such as urinary incontinence and outcomes of salvage treatments. There were 27 patients (16.5%) with D'Amico low, 115 patients (70.5%) with intermediate and 23 patients (14.1%) with high-risk prostate cancers. One month after FC, a 73% reduction in PSA resulted in a median post-operative PSA of 1.39 ng/mL (IQR: 0.46-2.80 ng/mL). The median follow-up from the initial procedure was 39 months (IQR: 24-60). Our biochemical disease-free survival rates of 78%, 74%, and 55% in low, intermediate and high-grade cancers, respectively, add to the growing body of literature around treatment outcomes with primary cryoablation. For secondary outcomes, including urinary incontinence, our result of 1.8% was similar to that of other reports of 0%-3.0%. Erectile dysfunction results varied in those same reports from 14% to 27%, compared to our result of 3.1% [6,7].

Jones JS and Rewcastle JC focus on the impact of primary cryoablation for Gleason 8, 9, and 10 localized or high-grade PCa in 132 patients and reported satisfactory biochemical disease-free survival at five years of 64.4% by ASTRO definition [8]. Our results yield relatively similar biochemical disease-free-survival rates at 55% for high-grade cancers. Oishi M et al., define outcomes of hemi-gland cryoablation in low, intermediate and high-grade PCa at five years. This 160-patient cohort yielded 78%, 57% and 67% biochemical failure-free for low, intermediate and high-grade cancers, respectively. Our results show the same results for low-grade cancers and similar results to intermediate and high-grade cancers in these two current, similar-sized and retrospective cohort studies. Salvage cryoablation could be an opportunity after recurrent disease post primary radiation as there are currently no guidelines for focal treatment post primary radiation [9]. This provides further first-hand clinical experience to the alternatives available instead of whole gland treatment.

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CONCLUSION

The extent of FC's efficacy as a primary or salvage treatment still remains to be established, but our conclusions demonstrate favorable PSA kinetics at five years follow-up. Common complications such as erectile dysfunction and urinary incontinence were minimal but still present in the patient cohort. Additionally, this retrospective study can further quantify BCR for primary FC. Our experience was not limited to intermediate or low-grade PCa and provided insight into outcomes of FC for high-grade PCa. If further studies continue to add to the literature around primary and salvage FC with prolonged follow-up, FC could prove to be efficacious in high-grade PCa treatment with limited morbidity.

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DISCLOSURES

None.

CONFLICTS OF INTEREST

No conflicts of interest relevant to this submission reported.

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