EARLY ONCOLOGIC AND FUNCTIONAL OUTCOMES 35 PATIENTS TREATED WITH MR-GUIDED FOCAL HIFU (MRgFUS) FOR INTERMEDIATE-RISK PROSTATE CANCER

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Introduction

Focal therapy (FT) with high intensity focused ultrasound (HIFU) for prostate cancer (PC) reduces functional complications with promising oncological results. Magnetic resonance image (MRI)-guided HIFU (MRgFUS) with MR-thermometry allows real-time temperature and energy monitoring therefore potentially maximizing precision compared to ultrasound-guided HIFU. This study aims to determine the oncologic and functional outcomes of MRgFUS in intermediate-risk localized PC in the largest single-center series of patients treated with the ExAblate 2100 device.

Methods

We enrolled 44 patients with grade group (GG) 2 or 3 PC, PSA ≤20ng/mL, and ≤cT2a. Procedures were performed using an endorectal focused ultrasound ablation system (ExAblate 2100, InSightec, Haifa, Israel) guided by a 1.5T MRI scanner (GE Healthcare, Waukesha, USA). Patients are followed for 2 years with scheduled early (5-months) and intermediate (24-months) oncologic follow-up. At 5 months following treatment, oncologic outcomes were evaluated with multiparametric MRI, PSA and 4-9 targeted biopsies from the ablation site (Artemis, Eigen). Functional parameters were evaluated using the International Prostate Symptom Score (IPSS), International Index of Erectile Function (IIEF-15) and International Consultation on Incontinence Questionnaire Short Form (ICIQ-UI-SF) questionnaires at baseline and follow-up.

Results

Between July 2016 and August 2019, 38 patients completed their 5-month follow-up after MRgFUS. The mean age was 68 years (range 57-80), and the mean PSA at baseline and 5 months were 7.44 ng/mL (range 1.55-19.88) and 4.42 ng/mL (range 0.34-19.92) respectively. At 5 months there was an 82% (31/38) complete pathologic tumour control rate. There were 7 patients with disease at the ablation site or margin on biopsy. One patient had MR visible residual GG2 and was treated with laser FT. The other men had clinically insignificant PC (4 with GG1 and 2 with microfocus GG2) and were managed with active surveillance. The IPSS showed +72% and +6.6% increase respectively at week 6 and 5 month compared to mean baseline values. The mean sexual function domain recorded from -31.5% to -19% difference at week 6 and 5-month respectively compared to mean baseline values.

Conclusion

MRgFUS shows encouraging short-term oncologic and functional outcomes for the treatment of intermediate-risk prostate cancer. However, the long-term efficacy will be determined in the coming years.