

available at www.sciencedirect.com
journal homepage: www.europeanurology.com



European Association of Urology



Prostate Cancer

Focal High Intensity Focused Ultrasound of Unilateral Localized Prostate cancer: A Prospective Multicentric Hemiablation Study of 111 Patients

Pascal Rischmann^{a,*}, Albert Gelet^{b,c,d}, Benjamin Riche^{c,e}, Arnaud Villers^f, Gilles Pasticier^g, Pierre Bondil^h, Jean-Luc Jungⁱ, Hubert Bugel^j, Jacques Petit^k, Harry Toledano^l, Stéphane Mallick^m, Olivier Rouvière^{c,d,n}, Muriel Rabilloud^{c,e}, Hélène Tonoli-Catez^b, Sébastien Crouzet^{b,c,d}

^a Department of Urology, Rangueil University Hospital, Toulouse, France; ^b Department of Urology and Transplantation Surgery, Edouard Herriot Hospital, Lyon, France; ^c Department of Urology, Université de Lyon, Lyon, France; ^d INSERM Unit 1032, LabTau, Université de Lyon, Lyon, France; ^e Hospices Civils de Lyon, Service de Biostatistiques, Lyon, France; ^f Department of Urology, Huriez Hospital, Lille University, France; ^g Department of Urology, CHU Pellegrin, Bordeaux, France; ^h Department of Urology, General Hospital of Chambéry, Chambéry, France; ⁱ Department of Urology, Pasteur Hospital, Colmar, France; ^j Department of Urology, University Hospital of Rouen, Rouen, France; ^k Department of Urology and Transplantation, South Hospital of Amiens, Amiens, France; ^l Department of Surgical Urology, North Hospital of Marseille, Marseille, France; ^m Department of Urology, Saint-Michel Clinic, Toulon, France; ⁿ Department of Radiology, Edouard Herriot Hospital, Lyon, France

Article info

Article history:

Accepted September 25, 2016

Associate Editor:

Giacomo Novara

Keywords:

Prostate cancer
Focal therapy
High-intensity focused ultrasound
Hemiablation
Prospective trial

Abstract

Background: Up to a third of patients with localized prostate cancer have unilateral disease that may be suitable for partial treatment with hemiablation.

Objective: To evaluate the ability of high intensity focused ultrasound (HIFU) to achieve local control of the tumor in patients with unilateral localized prostate cancer.

Design, setting, and participants: The French Urological Association initiated a prospective IDEAL multi-institutional study (2009–2015), to evaluate HIFU-hemiablation as a primary treatment.

Intervention: Multiparametric magnetic resonance imaging and biopsy were used for unilateral cancer diagnosis and control, and HIFU-hemiablation.

Outcome measurements and statistical analysis: Primary: absence of clinically significant cancer (CSC) on control biopsy at 1 yr (CSC: Gleason score ≥ 7 or cancer core length > 3 mm regardless of grade or > 2 positive cores). Secondary: presence of any cancer on biopsy, biochemical response, radical treatment free survival, adverse events, continence (no pad), erectile function (International Index of Erectile Function-5 ≥ 16), and quality of life (European Organization for Research and Treatment of Cancer QLQ-C28) questionnaires.

Results and limitations: One hundred and eleven patients were treated (mean age: 64.8 yr [standard deviation 6.2]; mean prostate-specific antigen: 6.2 ng/ml [standard deviation 2.6]; 68% low risk, 32% intermediate risk). Of the 101 patients with control biopsy, 96 (95%) and 94 (93%) had no CSC in the treated and contralateral lobes, respectively. Mean prostate-specific antigen at 2 yr was 2.3 ng/ml (standard deviation 1.7). The radical treatment-free survival rate at 2 years was 89% (radical treatments: six radical prostatectomies, three radiotherapies, and two HIFU). Adverse events were

* Corresponding author. Department of Urology, Centre Hospitalier Universitaire de Rangueil, 1, Avenue Jean Poulhès TSA 50032, Toulouse, 31059 Cedex 9, France. Tel. +33 5 61 32 32 40; Fax: +33 5 61 32 32 30.
E-mail address: rischmann.p@chu-toulouse.fr (P. Rischmann).

<http://dx.doi.org/10.1016/j.eururo.2016.09.039>

0302-2838/© 2016 European Association of Urology. Published by Elsevier B.V. All rights reserved.

Please cite this article in press as: Rischmann P, et al. Focal High Intensity Focused Ultrasound of Unilateral Localized Prostate cancer: A Prospective Multicentric Hemiablation Study of 111 Patients. Eur Urol (2016), <http://dx.doi.org/10.1016/j.eururo.2016.09.039>

Grade 3 in 13%. At 12 mo continence and erectile functions were preserved in 97% and 78%. No significant decrease in quality of life score was observed at 12 mo. One limitation is the number of low-risk patients included in this study.

Conclusions: At 1 yr, HIFU-hemiablation was efficient with 95% absence of clinically significant cancer associated with low morbidity and preservation of quality of life. Radical treatment-free survival rate was 89% at 2 yr.

Patient summary: This report shows that high intensity focused ultrasound half-gland treatment of unilateral prostate cancer provides promising results with high cancer control and low morbidity.

© 2016 European Association of Urology. Published by Elsevier B.V. All rights reserved.

1. Introduction

Treatment of favorable-risk localized prostate cancer remains controversial. Because prostate cancer is multifocal in 40% of men, whole gland therapy is used as standard treatment of localized prostate cancer [1]. However, the Prostate Cancer Intervention versus Observation Trial failed to demonstrate a significant survival advantage for radical surgery compared with the watchful waiting [2]. Active surveillance (AS) has been adopted as an option to decrease the risk of overtreatment in men who have favorable-risk disease and long-term outcomes of large AS series are now available [3]. Focal therapy is emerging as an alternative in the management of selected patients [4]. The aim is to achieve a good long-term control of the cancer with a minimal morbidity and to minimize the risk of subsequent radical therapy. Approximately 20% of men who are candidates for radical surgery have unilateral cancers and could be amenable for hemiablation [5]. The fundamental challenge is to accurately assess the spatial distribution of cancer within the gland [6]. High intensity focused ultrasound (HIFU) might be one of the best techniques for focal therapy because it is performed under real-time control. It can also be repeated while standard curative therapies (external beam radiotherapy [EBRT] and radical surgery) remain viable options if necessary. The French Association of Urology conducted a multi-institutional study to evaluate HIFU-hemiablation as a primary treatment for unilateral prostate cancer. The primary objective was the local control of the tumor.

2. Patients and methods

This prospective Stage 2b early dispersion and exploration IDEAL paradigm [7] study was conducted in 10 centers in France and was nationally approved by the Lyon Sud-Est III Ethics Committee (registration: 2009-034B) under EudraCT 2009-A00664-53 (Lyon, France). All participants provided written informed consent.

Treatment-naïve patients with T1/T2 clinical stage were considered for inclusion. Before inclusion, all patients underwent multiparametric magnetic resonance imaging (mpMRI) including T2-weighted, diffusion-weighted, and dynamic contrast-enhanced imaging at 1.5T or 3T. Focal lesions were scored using the Likert 5-level suspicion score from 1 (definitely benign) to 5 (definitely malignant) [8]. Diagnostic biopsies were random (≥ 12 cores) and targeted on any mpMRI lesions with a suspicion score ≥ 3 (at least two cores per lesion). All suspicious MRI targets on the contralateral side were rebiopsied before inclusion. Only patients showing unilateral cancer (≤ 2 adjacent sextants) with a

Gleason score ≤ 7 (3 + 4) were included. Patients with a biopsy confirmed mpMRI lesion located <6 mm from the apex or <5 mm from the sagittal midline were excluded.

transurethral resection of the prostate (TURP) were performed to either reduce the prostate volume (for those with a prostate > 50 cc) or for those with pretreatment obstructive symptoms. TURP was performed either >2 mo prior to HIFU or combined with the HIFU procedure under the same anesthesia.

Hemiablation was performed with the Ablatherm Integrated Imaging medical device (EDAP TMS France, Vaulx-en-Velin, France) under spinal or general anesthesia in patients in the right lateral decubitus position. The hemiablation treatment was performed with a 4-mm safety prostate tissue margin (untreated zone) at the apex in order to optimize sphincter preservation. The midline was defined by the urethra or Foley catheter position. Ipsilateral nerve sparing was not attempted.

Patients were seen at 3 mo, 6 mo, 12 mo, and every 6 mo. Follow-up mpMRI with subsequent 12-core random biopsies and targeted biopsies to any suspicious lesion at MRI were scheduled 6–12 mo after treatment.

The primary outcome was the absence of clinically significant cancer (CSC) defined as cancer with a Gleason score ≥ 7 or cancer core length >3 mm regardless of grade or >2 positive cores.

Secondary outcomes were the presence of any cancer on biopsy, biochemical (PSA variations) response, and radical treatment-free survival rate. All adverse events were collected and Clavien classified. Additionally, urinary function was evaluated using the International Prostate Symptom Score (IPSS). Incontinence was defined by the need of pads. Erectile dysfunction was defined as an International Index of Erectile Function (IIEF-5) score <16 [9]. Health-related quality of life was measured using the third version of the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C28).

The description of patients' characteristics was carried out using the relative and absolute frequencies for the qualitative characteristics, and the mean and standard deviation (SD) for the quantitative ones. The duration of follow-up and time to reach the PSA nadir were described using the median, minimum, and maximum values.

The probability of positive control biopsy was estimated with its 95% confidence interval (CI), built using the normal approximation of the binomial distribution. The probability of radical treatment-free survival at 24 mo was estimated using the Kaplan-Meier method. The evolutions of the different scores (ie, the IPSS score, the IIEF-5 score, and the EORTC QLQ-C28 score) between inclusion and 12 mo were described by the median, minimum, and maximum values. The evolutions were tested using the Wilcoxon test. All the analysis was carried out using the SAS software, version 9.3 (SAS Institute Inc., Cary, NC, USA).

3. Results

Between November 2009 and August 2014, 111 patients were included at 10 centers. Demographics and preoperative data are presented in Table 1.

Download English Version:

<https://daneshyari.com/en/article/5689333>

Download Persian Version:

<https://daneshyari.com/article/5689333>

[Daneshyari.com](https://daneshyari.com)