STUDY SUMMARY

RESEARCH TITLE:
Evaluation of an alternative treatment for localized prostate cancer using MRI-guided transurethral ultrasound with 1-year control for absence of cancer.

Abbreviated Title : MRI-TULSA

Sponsor : Hôpitaux Universitaires de Strasbourg

Principal Investigator: Dr Thibault TRICARD

N° HUS : 7429

N° IDRCB: 2019-A01537-50

Research justification:
Evaluation of a comprehensive alternative prostate treatment for the management of localized prostate cancer.

Primary objective:
Demonstrate that mri-guided transurethral ultrasound (mri-tulsa) enables disease control with absence of clinically significant cancer at the 1-year control biopsy.

Secondary objectives:

1. Evaluate biological response (psa) after treatment.
2. Verify absence of any cancer at 1-year control biopsies.
3. Calculate survival without radical salvage treatment (surgery, radiotherapy, or cryotherapy).
4. Evaluate side effects, complications, and hospitalizations related to device use.
5. Assess satisfactory clinical tolerance post-treatment (urinary functional symptoms, urinary continence, erectile dysfunction, quality of life).

Primary evaluation criterion
Absence of clinically significant cancer at 1-year prostate biopsy.

Clinically significant cancer defined by:

- Gleason ≥ 7, or
- 3 mm cumulative positive biopsy regardless of gleason score, or
- 2 positive biopsies

Critères d'évaluation secondaires :

1. Psa variation between pre- and post-operative periods.
2. Presence of non-clinically and clinically significant cancer at 1-year control biopsies.
3. Absence of salvage treatment.
4. Presence of complications requiring hospitalization.
5. Assessment of functional impact and quality of life:
    a. Urinary continence (usp)
    b. Erectile function (iief-15 ≤16)
    c. Quality of life (eortc qlq-c30)
    d. Ipss score

Experimental plan
Prospective, monocentric, interventional study on patients.

Inclusion criteria :

- Male ≥50 years, no upper age limit

- Histological proof of prostate adenocarcinoma
- Gleason ≤ 7(3+4)
- <t3 clinical, n0, m0
- Psa <15 ng/ml
- Prostate volume < 90 cc
- Ecog performance status 0-1
- Radiological tnm t≤ 2, n0, m0
- First-line treatment or relapse after primary radiotherapy
- Subject affiliated with a social security health insurance regime
- Subject able to understand study objectives and risks and provide informed consent
- Subject informed of pre-study medical visit results

Non-inclusion criteria

- Prostate gland size exceeding 5 cm length and 6 cm axial diameter on reference mri
- Prostate tissue containing cysts and/or calcifications > 1 cm (calcifications or cysts < 1 cm tolerated if not located near the periphery where temperature control occurs)
- Contraindication to mri (e.g., electrical or metallic implants, metallic fragments in body)
- Contraindication to gadolinium contrast (hypersensitivity to gadoteric acid, meglumine, or gadolinium-containing drugs)
- Contraindication to general anesthesia
- Metastatic cancer on imaging
- History of other cancer except non-melanoma tumor effectively treated 2 years prior to inclusion
- Irreversible hemostasis disorders
- Inability to provide informed information (emergency situation, comprehension difficulties)
- Urinary infection on ecbu 10 days before procedure not effectively treated at least 48 hours prior
- Subject under judicial protection
- Subject under guardianship or curatorship
- Subject in exclusion period from previous or ongoing study

Trial procedure

Information visit: consultation in urology surgery department for histologically confirmed localized prostate cancer. Patient informed about study. Pelvic mri and bone scintigraphy performed prior to inclusion in study.

Inclusion visit: informed consent and pre-therapeutic clinical evaluation (usp, ipss, iief-15, eortc qlq-c30).

Anesthesia consultation: approximately 3 weeks before surgery.

Hospitalization: 2-3 days for comprehensive prostate treatment.

Follow-up consultations: clinical and biological follow-up at 15 days, 3 months, 6 months, and 12 months with control mri at 3, 6, and 12 months.

End-of-study visit: 1 year post-treatment with systematic prostate biopsy at 12 months post-treatment and/or if suspicious lesion on mri or psa > nadir+2 ng/ml.

Experimental drug
Not applicable.

Medical device (non-experimental)

Tulsa-pro® is a medical device marketed by profound medical inc., toronto, canada, which obtained its ce (european conformity) marking in january 2018.

This device combines mri imaging with focused transurethral ultrasound treatment of the prostate.

Authorized and/or prohibited treatments

Authorized treatments:

- Usual analgesics levels I to III
- Antiepileptics or antidepressants with marketing authorization for neuropathic pain
- Capsaicin patch for local application
- Gadoteric acid
- Non-adrenaline lidocaine
- Treatments administered for general anesthesia and during post-operative period
- Systematic antibiotic prophylaxis: cefazoline, cefuroxine, gentamicin

Prohibited treatments:

- Anticoagulant treatments constitute a relative contraindication and must be relayed by heparin treatment to allow a therapeutic window (during biopsies and during the therapeutic procedure)
- Radiological procedure, radiotherapy, or prostate cryotherapy during the study period

Antiplatelet agent is not a contraindication; in case of dual Antiplatelet aggregation , a period of 5-10 days of monotherapy should be recommended

Number of subjects required : 25

Statistical method

Statistical analyses will include a descriptive phase and an inferential phase using fully bayesian techniques.

All analyses will be performed using r software.

In the absence of statistical testing, there is no type i error rate to set. Credibility intervals will be symmetric intervals at the 5% level.

Survival analysis without radical salvage treatment will be performed using the kaplan-meier technique.

Provisional timeline

Inclusion period duration: 36 months

Individual subject participation duration: 12 months

Total study duration: 48 months

Exclusion duration:

- During the study: 12 months
- At the end of the study: not applicable
- In case of premature exit: not applicable