PLEASE NOTE: *This trial has been registered retrospectively.*

Trial Description

Title

Focal radiation dose escalation in patients with primary prostate cancer (HypoFocal) – a prospective, multicenter, non-randomized study with 2 arms / Accompanying translational project: PersoRad

Trial Acronym

HypoFocal - Phase II

URL of the trial

[---]*

Brief Summary in Lay Language

The study uses the most modern imaging techniques (MRI and PSMA PET/CT) to deliver an individually adapted high precision radiation therapy. Radiation is applied as needed (from outside, or both from outside and inside) by taking into account the individual tumor localization in the prostate gland, in order to obtain a targeted dose escalation. The study utilizes two high precision radiation therapy techniques: Radiation from outside by Intensity Modulated Radiation Therapy (IMRT), and radiation from inside by high-dose rate (HDR) brachytherapy.

Brief Summary in Scientific Language

Conventional radiation therapy (RT) for patients with primary prostate cancer (PCa) aims at delivering a homogeneous dose to the entire prostatic gland. However, recent studies proved that a combination of multiparametric MRI (mpMRI) and prostate-specific membran antigen positron emission tomography/ computed tomography (PSMA PET/CT) imaging is able to detect the significant intraprostatic tumour mass (IPM). The aim of this prospective, non-randomized, multicenter phase II study is the individualization of RT for patients with primary PCa based on modern imaging techniques. The IPM will be defined by combined mpMRI and PSMA PET/CT information. The entire prostatic gland will receive a RT dose according to the current guidelines and a simultaneous dose escalation to the IPM will be performed either by moderate hypofractionated external beam RT (EBRT, Arm 1) or by high-dose rate brachytherapy (HDR-BT, Arm 2) under strict adherence to the organs at risks' dose constraints. Toxicities, patient reported quality of life as well as biochemical response will be assessed. Based on the findings of this study a prospective phase III study will be initiated in order to compare the dose escalation regimen with standard RT schemes.
The accompanying translational project "PersoRad – Implementation of mobile health tools and artificial intelligence for personalised radiation treatment planning and monitoring in prostate cancer" uses ex-vivo radiotherapy of extracted tumor tissue and measurement of residual yH2AX foci to quantify the intrinsic radiosensitivity of the patients. The radiosensitivity thus identified is correlated with clinical parameters such as gene expression in tumor tissue and

with radiographic patterns from MRI and PSMA PET imaging. For this neural networks (artificial intelligence) are used. In parallel, a mobile health app will be introduced to assess (i) patients' personal preferences before therapy and (ii) quality of life during and after therapy. The data is harmonized and statistically evaluated. In a final step, the results are implemented in radiobiological model systems that allow in-silico modeling of the individual response of prostate patients to radiotherapy.

Do you plan to share individual participant data with other researchers?

No

Description IPD sharing plan

The group of scientists who will have access to data is restricted to the PersoRad project partners who will obtain pseudonymized datasets of pretherapeutic imaging and of microdissectates of biopsy tissue, respectively. The precondition for sharing data with project partners is the written consent of the patients. 3 months after the start of the project, the exact procedure will be established by means of a Data Management Plan.

Organizational Data

- DRKS-ID: **DRKS00017570**
- Date of Registration in DRKS: **2019/08/23**
- Date of Registration in Partner Registry or other Primary Registry: **[---]***
- Investigator Sponsored/Initiated Trial (IST/IIT): **yes**
- Ethics Approval/Approval of the Ethics Committee: **Approved**
- (leading) Ethics Committee Nr.: **266/18 , Ethik-Kommission der Albert-Ludwigs-Universität Freiburg**

Secondary IDs

Health condition or Problem studied

- ICD10: **C61 - Malignant neoplasm of prostate**

Interventions/Observational Groups

- Arm 1: **Intensity Modulated Radiation Therapy (IMRT)**
- Arm 2: **Brachytherapy (HDR)**

Characteristics

- Study Type: **Interventional**
- Study Type Non-Interventional: **[---]***
- Allocation: **Other**
- Blinding: **[---]***
- Who is blinded: **[---]***
- Control: **Other**
- Purpose: **Treatment**
- Assignment: **Other**
- Phase: **II**
- Off-label use (Zulassungsüberschreitende Anwendung eines Arzneimittels): **N/A**

Primary Outcome

Assessment of acute and chronic toxicities, as well as quality of life 2 years after treatment

Secondary Outcome

- 2 and 5 years' biochemical control according to Phoenix criteria (1); - Assessment of chronic toxicity and quality of life (5 years after treatment); - Assessment of overall survival, PCa specific survival and survival without metastases after 5 years; - Assessment of rate and localization of recurrences after 2 and 5 years (defined by MRI, PSMA PET/CT and/or biopsy); - Rate of screened patients as related to rate of actually included patients and adherence to dose restrictions; - Initiation of a phase 3 study; - Translational project PersoRad: Quantification of intrinsic radiosensitivity, correlation with clinical parameters, assessment of patients' personal preferences and quality of life, implementation in radiobiological model systems.

Countries of recruitment

- DE **Germany**

Locations of Recruitment

- University Medical Center **Klinik für Strahlenheilkunde, Freiburg im Breisgau**
- University Medical Center **Charité, Klinik für Radioonkologie und Strahlentherapie, Berlin**
- University Medical Center **TUM, Klinikum r.d. Isar, Klinik u. Polikl. f. RO u. Strahlentherapie, München**
- University Medical Center **LMU Strahlentherapie und Radioonkologie, München**

- University Medical Center **CCC Radiation Oncology, Tübingen**

Recruitment

- Planned/Actual: **Actual**
- (Anticipated or Actual) Date of First Enrollment: **2019/07/01**
- Target Sample Size: **130**
- Monocenter/Multicenter trial: **Multicenter trial**
- National/International: **National**

Inclusion Criteria

- Gender: **Male**
- Minimum Age: **18 Years**
- Maximum Age: **no maximum age**

Additional Inclusion Criteria

- Histology proven PCA; - cT1b-3b, cN0 and cM0 (MRI, PET/CT); - Intermediate and high risk; - ECOG Performance Status 0 or 1; - IPSS < 15; - size of prostate gland ≤ 60 ml (after concluding neoadjuvant ADT)

Exclusion criteria

- cT4 (MRT or PET/CT); - Gleason ≥ 9; - Neuroendocrine tumors; - PSA > 40 ng/ml; - Contraindications for MRI; - Other malignancies (tumors that have not been healed); - Fluorides, inflammatory bowel disease; - Previous TURP or surgery of the prostate; - Patient not legally competent; - Previous radiation in the pelvic area

Addresses

- **Primary Sponsor**

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- **Contact for Scientific Queries**

Contact for Scientific Queries

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Sources of Monetary or Material Support

- **Institutional budget, no external funding (budget of sponsor/PI)**

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URL: **[---]***

Status

- Recruitment Status: **Recruiting ongoing**
- Reason, if "Recruitment stopped after recruiting started" or "Recruiting withdrawn before recruting started": **[---]***
- Reason, if Reason for Recruiting Stop "Other": **[---]***

Reason, if Reason for Recruiting Stop "Other": **[---]***

- Study Closing (LPLV): **[---]***
- Number of Participants in Germany after Recruiting complete: **[---]***
- Total Number of Participants (all Sites worldwide) after Recruiting complete: **[---]***

Trial Publications, Results and other documents

** This entry means the parameter is not applicable or has not been set.*

**** This entry means that data is not displayed due to insufficient data privacy clearing.*