Single fraction high-dose-rate brachytherapy monotherapy in prostate cancer * Phase I-II trial

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Renal and urinary tract neoplasms malignant and unspecified
Study type	Interventional

Summary

ID

NL-OMON46332

Source
ToetsingOnline

Brief title
Single fraction HDR-BT

Condition

- Renal and urinary tract neoplasms malignant and unspecified

Synonym
low-risk prostate cancer, prostate carcinoma

Research involving
Human

Sponsors and support

Primary sponsor: Erasmus MC, Universitair Medisch Centrum Rotterdam
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: acute and late toxicity, HDR brachytherapy, low-risk prostate cancer

Outcome measures

Primary outcome

In phase I the incidence of acute (up to 3 months after treatment) gastrointestinal (GI) and genitourinary (GU) toxicity grade 3 or higher will be determined for each dose level. In phase II the acute and one-year late toxicity incidences will be evaluated as primary endpoints.

Secondary outcome

Secondary endpoints will be biochemical recurrence rate, disease specific survival and quality of life.

Study description

Background summary

Hypofractionation of radiotherapy prostate cancer (PCa) treatment regimens have shown good results. High-dose-rate brachytherapy (HDR-BT) as monotherapy is one of the most used hypofractionated treatments for PCa with several fractions in a short time period. Early experiences with a single fraction regimen are primitive but seem promising. However, the appropriate dose level and the toxicities are not yet known and not investigated. Changing a multi-fraction scheme into a one-fraction scheme will improve patient comfort during treatment, improve treatment accuracy and save time, costs and human resources. A one-fraction scheme is also expected to decrease toxicity rates with similar clinical outcome as the standard treatment scheme. However, there is no clear evidence which dose level will result in best outcome without increasing toxicity.

Study objective

This combined phase I and II study is proposed to find the appropriate save dose level of one-fraction HDR-BT as monotherapy for low-risk PCa (phase I) and to evaluate the toxicity and clinical outcome of this dose level (phase II). In

phase I, acute toxicity of three dose levels will be assessed to find the highest save dose level without excessive toxicity. Phase II will test the feasibility of this recommended dose level (RDL) in a larger patient population and with longer follow-up.

Study design

This study is designed as a prospective, nonrandomized combined phase I and phase II study in which three consecutive groups of patients with low-risk PCa will be treated with three different dose levels using single fraction HDR-BT monotherapy. In phase I, a 5+5 dose escalation scheme will be used to establish the RDL and, depending on the findings, 20-30 patients will be included. For phase II 45 will be included in a minimax Simon 2-stage design, including the 10 patients from phase I treated with the RDL. An interim analysis will be performed after 23 patients.

Intervention

All patients will be treated with HDR-BT in a single fraction. In phase I fraction doses will be 19, 19.5 and 20 Gy for consecutive groups. Phase II will continue with the RDL of phase I.

Study burden and risks

Compared to the standard monotherapy regimen, only treatment time and dose level will be different. Total dose will be delivered in one day instead of two days, which reduces patient burden. The total dose given is lower than the dose given in current practice. However, the highest save dose level is not confirmed and toxicity and clinical outcome of this one-fraction scheme are still unclear and subject of this study. During follow-up the schedule of visits will be kept strictly according to normal clinical practice. Follow-up also includes the use of patient self-assessment questionnaires which will be sent according to the standard schedule to assess toxicity and quality of life.

Contacts

Public
Erasmus MC, Universitair Medisch Centrum Rotterdam

Groene Hilledijk 301
Rotterdam 3075 EA
NL
Scientific
Erasmus MC, Universitair Medisch Centrum Rotterdam

Groene Hilledijk 301
Rotterdam 3075 EA
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Men aged 18-80 years
Histological confirmation of prostate adenocarcinoma
Gleason score * 7
Clinical stage T1c-T2a, N0-X, M0
PSA * 15 ng/ml
WHO performance status 0-2
Prostate volume * 50 ml
IPSS score * 12
Maximum urinary flow rate * 15 ml/s at uroflowmetry and residual volume of < 100 ml
Ability and willingness to comply with follow-up and completion of questionnaires
Written informed consent.

Exclusion criteria

Previous malignancy within the last 5 years, except basal cell carcinoma or squamous cell carcinoma of the skin
In case of Gleason score 7: more than 3 positive biopsies
Prior pelvic radiotherapy
Prior androgen deprivation therapy (including androgen agonists and antagonists)
Any prior active treatment for prostate cancer (Patients previously on active surveillance are eligible if they continue to meet all other eligibility criteria)
Life expectancy <5 years
Prior TURP (transurethral resection of the prostate)

Co-morbidity preventing general or spinal anesthesia
Hip prostheses or any other implants/hardware that would introduce substantial CT artifacts
Medical conditions likely to make radiotherapy inadvisable e.g. inflammatory bowel disease or significant urinary symptoms
Anticoagulation with coumarins or bleeding tendency making brachytherapy unsafe in the opinion of the clinician
Medical condition or implant that prohibits MRI imaging
Participation in another concurrent treatment protocol.

Study design

Design

Study type: Interventional

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	16-06-2016
Enrollment:	65
Type:	Actual

Ethics review

Approved WMO Date:	26-02-2016
Application type:	First submission
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)
Approved WMO Date:	17-10-2017
Application type:	Amendment
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL55981.078.15

Study results

Date completed:	01-06-2018
Actual enrolment:	10