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Can circulating tumour cells predict the spread of prostate cancer to help decide treatment of localised cancer?

Submission date
04/05/2022

Recruitment status
No longer recruiting

Registration date
17/05/2022

Overall study status
Ongoing

Last Edited
08/04/2024

Condition category
Cancer

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims

Prostate cancer (PCa) is the second most common cause of cancer death in males. Part of the reason for this is that many prostate cancer (PCa) cases do not show symptoms at an early stage, so that the disease is not diagnosed until it has already grown and possibly spread outside of the prostate. Metastasis (cancer spreading to a different part of the body from where it started) is the main cause of PCa death. The stage of disease affects the choice of treatment quite a lot. Theoretically, localised PCa may be cured by complete surgical removal. However, many apparently localised PCa cases treated by surgical removal reoccur, indicating the presence of undetected cancer spread at the time of surgery. These particular patients require additional treatment after surgery, usually with radiation or hormone therapy. The major challenge in managing aggressive apparent localised PCa is distinguishing between PCa that has not spread from PCa with undetected cancer spread, which cannot be cured by surgery alone. A test is required which can be performed before surgery to distinguish patients suitable for surgical removal of the cancer from those who would benefit from more extensive hormonal-, chemo- and/or radio-therapy. No current imaging test can detect the spread that may consist of just a few PCa cells.

Circulating tumour cells (CTCs) are cancer cells spread into the blood circulation, from where they may further spread to the other parts of the body to form metastases. They can be detected at a very early stage of cancer development. We believe that detection of CTCs can provide an accurate indicator of cancer spread and that CTC gene expression may predict the potential for future recurrence. We have established a promising CTC analysis method, by which we have detected CTCs in all patients with cancer spread and have demonstrated the value of using CTC analysis in predicting the diagnosis of aggressive PCa. Our CTC results may reflect the existence of spreading cancer cells and determine the treatment method better than the current systems in clinical use.

Therefore, a study with CTC analysis before surgery and follow-up over a long period after surgery (10 years) is required to confirm the value of this analysis in determining spread, i.e. predicting post-surgery cancer recurrence and future spread of the cancer. This will be a collaborative study of clinicians and research scientists at University College of London Hospitals NHS Trust (UCLH) and Queen Mary University of London (QMUL). The aim of the study is to

provide evidence and data for using CTCs to guide the choice of treatment for apparently localised PCa - giving the additional treatment as necessary - and avoid unnecessary treatment and associated side effects in those who only need surgery.

Who can participate?
Patients who have been diagnosed with high to intermediate risk apparently non-metastatic localised PCa based on the European Association of Urology guidelines, are scheduled for robot-assisted radical prostatectomy (RP) and who have given informed consent.

What does the study involve?
We will take blood samples from prostate cancer patients undergoing radical prostatectomy, and test these for signs of circulating tumour cells (including gene expression) in order to determine whether these predict RP treatment failure. Participants in addition to their routine care will be asked to provide a 20 ml blood sample for the purpose of this study. Participants will have their blood samples taken just before surgery and 3 months after the surgery to test for CTCs. Then participants will be followed-up for cancer progression information at 3-month intervals for the first year, then yearly intervals after that. Their PSA levels will be observed over time.

Where is the study run from?
Queen Mary University London (UK)

When is the study starting and how long is it expected to run for?
February 2022 to January 2034

Who is funding the study?
Prostate Cancer UK

Who is the main contact?
Yong-Jie Lu, y.j.lu@qmul.ac.uk

Contact information

Type(s)
Principal investigator

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Additional identifiers

ClinicalTrials.gov (NCT)
NCT05533515

Integrated Research Application System (IRAS)
140998

Study information

Scientific Title
Circulating tumour cells as biomarkers to predict prostate cancer metastasis for treatment stratification of localised cancer

Acronym
C-ProMeta-1

Study objectives
Circulating tumour cells (CTCs) will positively predict post radical prostatectomy treatment failure.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 19/10/2021, London - City & East Research Ethics Committee(Bristol Research Ethics Committee Centre, Whitefriars, Level 3, Block B, Lewins Mead, Bristol, BS1 2NT, UK; +44 2071048033), ref: 19/LO/0994

Primary study design
Observational

Study design
Observational single site double-blinded prospective paired cohort study

Study type(s)
Screening

Health condition(s) or problem(s) studied
Treatment and diagnosis of localised prostate cancer

Interventions
Current intervention as of 10/06/2022:
Participants will have their blood samples taken just before surgery and 3 months after the surgery to test for CTCs. Then participants will be followed-up for cancer progression information at 3-month intervals for the first year then yearly intervals after that. Their PSA levels will be observed over time.

Previous intervention:
Participants will be recruited and blood samples will be collected to measure CTCs . This will be done at regular intervals. For the first year of participation participants will be tested every 3 months then after the first year this will be done once a year.

Intervention Type
Other

Primary outcome(s)
Current primary outcome measure as of 06/09/2022:

Post-RP treatment failure defined as a PSA ≥ 0.2mg/ml at the routine PSA test 3 months after RP (commonly called 'failure to nadir') and remaining at this level or further increase afterwards without further treatment, or imaging detected appearance of cancer lesions.

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Previous primary outcome measure:

Post-RP treatment failure during the first 4.5 years of follow up from start of recruitment which is defined as a PSA ≥ 0.2mg/ml at the routine PSA test 3 months after RP (commonly called 'failure to nadir') and remaining at this level or further increase afterwards without further treatment, or imaging detected appearance of cancer lesions. Cancer lesions detected by imaging without a PSA rise might include neuroendocrine PCa and lesions detected by PSAM-PET. This combined post-RP treatment failure primary endpoint will maximally capture all the clinically significant cancer appearance events.

Key secondary outcome(s)
1. BCR during the first 4.5 years of follow up: PSA ≥ 0.2ng/ml at any time post-RP and remaining at this level or further increase afterwards without further treatment.
2. Metastasis (any location)-free survival during the first 4.5 years of follow up. Only 5% of subjects with distant metastasis event (based on traditional imaging technologies) within this time frame (4-6).
3. Metastasis (any location)-free survival at 10 years follow up. To confirm that metastatic event rates have increased among the positives, i.e. a declining rate of "false positives".
4. Deaths from any cause during the first 4.5 years of follow up.
5. Overall survival at 10 years of follow up.
6. Prostate cancer specific deaths during the first 4.5 years of follow up. Expected to be 2% or less based on previous studies in the post RP context.
7. Prostate cancer specific survival at 10 years of follow up.

Completion date
01/01/2034

Eligibility

Key inclusion criteria

1. High/High intermediate risk non-metastatic risk localised PCa based on the EAU stratification system
2. Scheduled for robot-assisted RP
3. Informed consent

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Key exclusion criteria
1. With other co-occurring cancers
2. Neo-adjuvant ADT
3. Adjuvant ADT

Date of first enrolment
08/02/2022

Date of final enrolment
01/01/2024

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
University College London Hospital
235 Euston Road
London
United Kingdom
NW1 2BU

Sponsor information

Organisation
Queen Mary University of London

ROR
https://ror.org/026zzn846

Funder(s)

Funder type
Charity

Funder Name
Prostate Cancer UK

Results and Publications

Individual participant data (IPD) sharing plan
The current data sharing plans for this study are unknown and will be available at a later date
The data generated from this study will be securely stored in a designated folder in the BCC IT server with access to Principal Investigator and his research team.

IPD sharing plan summary
Stored in non-publicly available repository, Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article		23/06/2023	26/06/2023	Yes	No
HRA research summary			28/06/2023	No	No
Participant information sheet	version 1	31/08/2021	06/05/2022	No	Yes
Protocol file	version 1	01/09/2021	11/05/2022	No	No