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Cytokine levels during prostate cancer radiotherapy

Submission date 08/12/2017	**Recruitment status** No longer recruiting	[_] Prospectively registered [_] Protocol [_] Statistical analysis plan [X] Results [_] Individual participant data
Registration date 14/12/2017	**Overall study status** Completed	
Last Edited 11/04/2019	**Condition category** Cancer	

Plain English summary of protocol

Background and study aims
Prostate cancer is a common cancer in men. Patients with prostate cancer often undergo radiotherapy as a part of their cancer treatment. Radiotherapy is a treatment where radiation is used to kill cancer. Radiotherapy is an effective treatment, but patients can be affected by significant side effects, that can adversely condition their quality of life. New radiotherapy technologies helped in highly reducing the proportion of patients experiencing side-effects. Nevertheless, a portion of patient still suffer of radioinduced toxicity and the availability of tools predicting unusual radiation toxicity could be crucial in improving the potential of individualising the treatment. A recent “hot topic” in prostate cancer radiotherapy is the observed association intestinal side effects and the presence of abdominal surgery before radiotherapy. The reasons for this are still unknown and only some hypothesis can be suggested. The hypothesis investigated in this trial is that a previous surgery may influence plasma level of inflammatory molecules and this fact might result in an increased radiosensitivity. The aim of this study is to determine the plasma levels of some inflammatory molecules at different times during treatment and to measure if these levels of inflammatory molecules are associated with the presence of an abdominal surgery before radiotherapy or with the insurgence of radiation induced intestinal side-effects.

Who can participate?
Adults aged 18 to 80 years old with prostate cancer who are undergoing radiotherapy.

What does the study involve?
There is no change to standard radiotherapy treatment is foreseen. Participating patients are asked to have some blood samples before/during and after radiotherapy and to fill in self-reported questionnaires which will be used to score in an objective way their intestinal side-effects.

What are the possible benefits and risks of participating?
There are no direct benefits or risks associated with participation.

Where is the study run from?
Fondazione IRCCS Istituto Nazionale dei Tumori (Italy)

When is the study starting and how long is it expected to run for?
December 2010 to July 2017

Who is funding the study?
Fondazione IRCCS Istituto Nazionale dei Tumori (Italy)

Who is the main contact?
Dr Tiziana Rancati

Contact information

Type(s)
Scientific

Contact name
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Prostate Cancer Program
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Additional identifiers

Protocol serial number
INT 67/10

Study information

Scientific Title
Prospective evaluation of plasma levels of soluble mediators associate to inflammatory response in prostate cancer patients undergoing radiotherapy and association with acute and late rectal toxicity

Study objectives
The working hypothesis, which guided the here presented study, was that a previous surgery may influence plasma level of inflammatory molecules/cytokines and this fact might result in an enhanced radiosensitivity. Surgery could function as a potential precursor of inflammatory patterns that could lead to an increased sensitivity even far from the surgical injury through cytokines mediated reactions.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Ethics Board of Fondazione IRCCS Istituto Nazionale dei Tumori, 22/12/2010, ref: INT 67/10

Study design
Observational study. 20 consecutive patients undergoing radical prostate cancer radiotherapy. Single centre.

Primary study design
Observational

Study type(s)
Quality of life

Health condition(s) or problem(s) studied
Prostate cancer

Interventions
Patients with a diagnosis of histologically confirmed, locally confined, prostate adenocarcinoma and receiving definitive Intensity Modulated Radiation Therapy (IMRT) at 78 Gy (2 Gy/fraction) are enrolled in this pilot study. Ten millilitres of EDTA blood samples are obtained before radiotherapy (baseline), after a dose of 8 Gy, after 50 Gy, at radiotherapy end and one month after treatment completion. Samples are centrifuged for 20minutes at 2200r.c.f./4°C and immediately stored at ≤−80°C until analysis. All analyses are carried out blind to patient and therapy factors.

The amount of IL-1b, IL-6, CXCL8, TNFalpha, CCL2 and PTX3 are determined using commercially available ELISA kits (R&D Systems Inc., Minneapolis, MN, USA), according to manufacturer's protocols.

Participants are examined at the start of treatment, once weekly during treatment, at the end of RT, and every six months thereafter till 5 year follow-up.

Radio-induced toxicity is scored using a self-administered questionnaire. It consists of 10 questions, the answers to which are worded to be compatible with a 4-point categorical scale (1, not at all; 2, a little; 3, much; and 4, very much) which correspond to the SOMA/LENT (Subjective Objective Management Analytic/Late Effects on Normal Tissue) grading. With this questionnaire, four major types of rectal injury can be evaluated: rectal bleeding and mucosal loss, sphincter control and continence, stool frequency, and pain and urgency.

Acute rectal symptoms are defined as the maximum grade reached within one month after radiotherapy end. Late symptoms are determined as the maximum grade reached between six months and five years after treatment completion.

Intervention Type
Other

Primary outcome(s)
1. Plasma levels of the selected inflammatory molecules in prostate cancer patients undergoing radical radiotherapy are measured using commercially available ELISA kits according to manufacturer's protocols at before radiotherapy (baseline), after a dose of 8 Gy (at the end of the first week of radiotherapy), after 50 Gy (at the end of fifth week of radiotherapy), at radiotherapy end and one month after treatment completion
2. Levels of inflammatory molecule kinetics as a function of radiation dose and follow-up time are measured using commercially available ELISA kits at timepoints are before radiotherapy

(baseline), after a dose of 8 Gy (at the end of the first week of radiotherapy), after 50 Gy (at the end of fifth week of radiotherapy), at radiotherapy end and one month after treatment completion

Key secondary outcome(s))
1. Relationship between plasma levels of the selected inflammatory molecules and acute/late radioinduced intestinal toxicity. Plasma levels of the selected inflammatory molecules in prostate cancer patients undergoing radical radiotherapy. They are measured using commercially available ELISA kits (R&D Systems Inc., Minneapolis, MN, USA), according to manufacturer's protocols. Considered timepoints are before radiotherapy (baseline), after a dose of 8 Gy (at the end of the first week of radiotherapy), after 50 Gy (at the end of fifth week of radiotherapy), at radiotherapy end and one month after treatment completion.
2. Scoring of acute and late intestinal toxicity, patients are examined at the start of treatment, once weekly during treatment, at the end of RT, and every six months thereafter till 5 year follow-up. Radio-induced toxicity is scored using a self-administered questionnaire.

Completion date
31/07/2017

Eligibility

Key inclusion criteria
1. Prostate cancer patient
2. Radical radiotherapy treatment at doses>74 Gy, standard fractionation at 2Gy/fraction, 1 fraction/day, 5 days/week
3. Three-dimensional conformal radiotherapy or Intensity Modulated radiotherapy
4. Age >=18 years and age <=80 years
5. Written informed consent
6. Availability for blood sample before radiotherapy (baseline), after a dose of 8 Gy, after 50 Gy, at radiotherapy end and one month after treatment completion

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
Male

Total final enrolment
20

Key exclusion criteria

1. Age <18 years and age >80 years
2. Previous radiotherapy in pelvic or abdomen region
3. Patients with infections at time of possible enrollment
4. Patients with chronic inflammatory bowel diseases
5. Patients chronically treated with cortisonic drugs, non-steroid antiinflamatory drugs, or with immunosuppressive therapies
6. Patients who cannot guarantee adequate follow-up

Date of first enrolment
04/03/2011

Date of final enrolment
02/07/2012

Locations

Countries of recruitment
Italy

Study participating centre
Fondazione IRCCS Istituto Nazionale dei Tumori
Milan
Italy
20133

Sponsor information

Organisation
Fondazione IRCCS Istituto Nazionale dei Tumori

ROR
https://ror.org/05dwj7825

Funder(s)

Funder type
University/education

Funder Name
Fondazione IRCCS Istituto Nazionale dei Tumori

Results and Publications

Individual participant data (IPD) sharing plan

The dataset is not available as we did not foresee this while having ethics approval. Patients signed a consent on treatment of their data where it was stated that data would be kept inside the National Cancer Institute. Data are held on a server in electronic format and in paper sheets at the National Cancer Institute in Milan.

IPD sharing plan summary

Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	25/02/2018	11/04/2019	Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes