AARHUS UNIVERSITY

Press release

Please fill in this form and return it to graduateschoolhealth@au.dk in Word format no later than three weeks prior to your defence.

Basic information

Name: Pietro Mancosu Email: pietro.mancosu@gmail.com Phone: +39 339 2111813

Department of: Clinical Medicine

Main supervisor: prof. Ludvig Muren

Title of dissertation: "Optimization of total marrow irradiation for hematopoietic malignancies using volumetric modulated arc therapy"

Date for defence: 1st April 2019 at (time of day): 1 PM Place: DCPT Skejby, Indgang B3, Level 4, conference room 122

Press release (Danish)

Optimering af total marvbestråling til hæmatopoietiske maligniteter ved anvendelse af volumetrisk moduleret buebehandling

I denne afhandling blev der udført en række teknologiske udviklinger med det formål at forbedre strålebehandlingsteknikker som led i knoglemarvstransplantation, hvilket letter accepten af donortransplantationen. Projektet blev udført af Pietro Mancosu, der forsvarer sin afhandling den 1. april 2019.

Nobelprisen Joseph Thomas introducerede den generelle bestråling af kroppen for at tilvejebringe immunosuppression, som letter donortransplantation. Den øgede forventede levetid afslørede imidlertid forekomsten af vigtig toksicitet, hvilket begrænsede dets anvendelse. Total marvbestråling (total marrow irradiation - TMI) blev undersøgt for at spare så meget som muligt ikke-skeletstrukturer for at reducere uønskede bivirkninger. I denne strålebehandling bør mere end 10 liter bestråles ved fuld dosis (normalt er det volumen, der skal bestråles ved strålebehandling, mindre end 1 liter), mens dosis minimeres til de resterende sunde væv. Denne afhandling præsenterede doseplanlægningsundersøgelser, simuleringsstudier, fantommålinger og in vivo målinger under behandlinger for at understøtte brugen af TMI.
Forsvaret er offentligt og finder sted den 01/03 kl. 13.00 på Dansk Center for Partikelterapi, Aarhus Universitetshospital, Palle Juul-Jensens Blvd. 99, Indgang B3, Level 4, conference room 122, 8200 Aarhus. Projektets titel er "Optimering af total marvbestråling til hæmatopoietiske maligniteter ved brug af volumetrisk moduleret buebehandling". For yderligere information kontakt venligst ph.d.-studerende Pietro Mancosu, email: pietro.mancosu@gmail.com, telefon +39 339 2111813

Bedømmelsesudvalg:
Umberto Ricardi, professor, MD
Institut for Onkologi
Universitetet i Torino, Italien

Ivan Vogelius, klinisk professor, ph.d.
Institut for Onkologi & Det Sundhedsvidenskabelige Fakultet
Rigshospitalet, Københavns Universitet, Danmark

Brita Singers Sørensen, lektor, ph.d.
Institut for eksperimentel klinisk onkologi,
Aarhus Universitetshospital, Danmark

Press release (English)

AARHUS UNIVERSITY

Optimization of total marrow irradiation for hematopoietic malignancies using volumetric modulated arc therapy

In this thesis a series of technological developments aiming at improving radiotherapy techniques as part of bone marrow transplantation that facilitates the donor transplant acceptance was performed. The project was carried out by Pietro Mancosu, who is defending his dissertation on first of April 2019.

Nobel prize Joseph Thomas introduced the total irradiation of the body to provide immunosuppression that facilitates the donor transplant acceptance. However, the increased life expectancy revealed the occurrence of important toxicities, limiting its use. Total Marrow Irradiation (TMI) was studied for sparing as much as possible non-skeletal structures to reduce unwanted side effects. In this radiotherapy treatment, more than 10 litres should be irradiated with full dose (usually the volume to be irradiated is less than 1 litre) while the dose to the remain healthy tissue should be minimized. This thesis presented dose planning studies, simulation studies, measurements on phantoms and in-vivo measurements during treatments to support the use of TMI.
The defence is public and takes place on 01/03 at 1 PM at the Danish Centre for Particle Therapy, Aarhus University Hospital, Palle Juul-Jensens Blvd. 99, Entrance B3, Level 4, conference room 122, 8200 Aarhus. The title of the project is “Optimization of total marrow irradiation for hematopoietic malignancies using volumetric modulated arc therapy”. For more information, please contact PhD student Pietro Mancosu, email: pietro.mancosu@gmail.com, Phone +39 339 2111813.

Assessment committee:
Umberto Ricardi, Professor, MD
President of the Eurpean SocieTy for Radiotherapy and Oncoloy (ESTRO)
Department of Oncology
University of Turin, Italy

Ivan Vogelius, Clinical Professor, PhD
Department of Oncology & Faculty of Health Sciences
Rigshospitalet, Copenhagen University, Denmark

Brita Singers Sørensen, Associate Professor, PhD
Department of Experimental Clinical Oncology,
Aarhus University Hospital, Denmark

Permission

By sending in this form:

- I hereby grant permission to publish the above Danish and English press releases.
- I confirm that I have been informed that any applicable inventions shall be treated confidentially and shall under no circumstances whatsoever be published, presented or mentioned prior to submission of a patent application, and that I have an obligation to inform my head of department and the university’s Patents Committee if I believe I have made an invention in connection with my work. I also confirm that I am not aware that publication violates any other possible holders of a copyright.