Promotor

Prof. Dr. G. Storme
Radiotherapie - UZ Brussel
Vrije Universiteit Brussel

Co-promotoren

Prof. Dr. F. Keuppens
Urologie - UZ Brussel

Prof. Dr. D. Verellen
Radiotherapie - UZ Brussel

Vrije Universiteit Brussel

Leden van de examencommissie

Prof. Dr. M. Bolla
Service de Cancérologie Radiothérapie
Centre Hospitalier universitaire de Grenoble
France

Prof. Dr. H. Van Poppel
Urologie - UZ Leuven
Katholieke Universiteit Leuven

Prof. Dr. W. De Neve
Radiotherapie - UZ Gent
Universiteit Gent

Prof. Dr. J. de Mey
Radiologie en Medische Beeldvorming
UZ Brussel
Vrije Universiteit Brussel

Prof. Dr. H. Everaert
Nucleaire Geneeskunde - UZ Brussel
Vrije Universiteit Brussel

Dr. V. Vinh-Hung
Radiotherapie - UZ Brussel
Vrije Universiteit Brussel

Prof. Dr. J. De Grève (voorzitter)
Medische Oncologie - UZ Brussel
Vrije Universiteit Brussel

Vrije Universiteit Brussel

FACULTEIT GENEESKUNDE EN FARMACIE

Doctoraat Medische Wetenschappen
Academiejaar 2006-2007

UITNODIGING

Voor de openbare verdediging van het doctoraatsproefschrift van

Guy SOETE

29 mei 2007

U wordt vriendelijk uitgenodigd op de openbare verdediging van het proefschrift van

Guy SOETE

'Technical and clinical evaluation of image guided conformal arc radiotherapy for localized prostate cancer'

Op **dinsdag 29 mei 2007** om **17u00** in auditorium **P. Brouwer** van de Faculteit Geneeskunde & Farmacie, Laarbeeklaan 103, 1090 Brussel

Situering van het proefschrift

The purpose of radiotherapy is to sterilize malignant tumours and at the same time to avoid radiation injury to the surrounding healthy tissues. Two recent technical developments have dramatically increased the precision of radiotherapy: conformal and image guided radiotherapy. The former aims at shaping the dose distribution to the shape of the target. The latter aims at delivering this conformal dose to a precise location within the patient.

The thesis summarizes the evaluation and clinical implementation of image guided conformal arc therapy for prostate cancer. The positioning system uses automatic co-registration of X-ray images with a reference image set from the planning CT. Phantom measurements showed an accuracy at the mm level. Applied to patients, setup errors were reduced by X-ray compared to conventional positioning using skin drawings and lasers, leading to a reduction of normal tissue irradiation. Setup errors were further reduced by use of implanted radio-opaque markers. In a subsequent study, conformal arc therapy was compared to intensity modulated radiotherapy. Both techniques were equivalent in case of a convex target shape. Because of its superior treatment efficiency, conformal arc therapy is considered the treatment of choice for a convex target. The last study documented favourable patient outcome after clinical implementation of X-ray positioning and conformal arc therapy.

Our results contribute to the debate whether patients with localized prostate cancer should be submitted to the hazards of radical prostatectomy. With modern radiotherapy techniques, a randomized trial comparing both treatment modalities seems no longer unethical.

Curriculum Vitae

Guy Soete was born in 1966. He spent his childhood partially in Cologne (Germany) and his birthplace Bruges. After his secondary education he passed the entrance examination for civil engineer. However, driven by his interest in genetics and oncology he ultimately decided to study medicine. He graduated at the University of Ghent in 1991 with Great Distinction. He then was accepted for his radiotherapy training by prof. Storme at the university hospital (UZ Brussel) of the Vrije Universiteit Brussel and graduated in 1996.

By that time he had taken special interest in prostate cancer. He has given numerous presentations and wrote several peer-reviewed articles on the subject. He was part of the writing committee of an EORTC trial for prostate cancer and member of the committee addressing external beam radiotherapy on the 3rd WHO congress on prostate cancer. His main activity is at the radiotherapy department of the UZ Brussel. He recently introduced permanent seed implant brachytherapy for prostate cancer in cooperation with two general hospitals connected to the radiotherapy department of the UZ Brussel.