



UNIVERSITY OF GOTHENBURG

Towards restored physical and psychological health among irradiated prostate-cancer survivors

Avoiding long-lasting symptoms from the bowel and the anal-sphincter region after radiotherapy for prostate cancer

AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen vid Sahlgrenska Akademin vid Göteborgs Universitet offentlig försvaras i Arvid Carlsson salen, Academicum, Medicinaregatan 3

fredagen den 16 mars kl. 09.00

av

David Alsadius
Legitimerad Läkare

Fakultetsopponent
Professor, Dr. Jan W.H. Leer
UMC St Radboud, Nijmegen, Nederländerna

Avhandlingen baseras på följande delarbeten:

- I. Waldenström AC*, Alsadius D*, Petterson N, Johansson KA, Steineck G, Müller M. Variation in Position and Volume of Organs at Risk in The Small Pelvis. *Acta Oncol.* 2009;49:491
- II. Alsadius D, Hedelin M, Johansson KA, Petterson N, Wilderäng U, Lundstedt D, Steineck G. Tobacco Smoking and Long-Lasting Symptoms from The Bowel and The Anal-Sphincter Region. *Radiother Oncol.* 2011; 101:495
- III. Alsadius D, Hedelin M, Lundstedt D, Wilderäng U, Steineck G. Disordered Bowel Habits are Associated with Long-Lasting Functional Symptoms among Irradiated Prostate-Cancer Survivors. *Submitted*
- IV. Alsadius D, Hedelin M, Petterson N, Lundstedt D, Wilderäng U, Steineck G. Mean Absorbed Dose to The Anal-Sphincter Region and Fecal Leakage Among Irradiated Prostate-Cancer Survivors. *Submitted*

* Waldenström and Alsadius contributed equally

ABSTRACT

There are an increasing number of irradiated prostate-cancer survivors in the world today. For many of these men survival comes at a cost: unwanted debilitating side effects due to exposure of healthy normal tissue to ionizing radiation. Identifying clinical and dosimetric factors associated with these long-lasting side effects could provide a way of attaining the ultimate goal – curing prostate cancer with radiotherapy while restoring physical and psychological health for the prostate-cancer survivor.

Following a preparatory qualitative phase, we constructed a study-specific questionnaire. In addition, we conducted a pilot study to evaluate the variation in position and volume of the organs at risk in the small pelvis. We received filled-in questionnaires from 874/985 (89%) prostate-cancer survivors and from 243/332 (73%) population-based controls. We found that prostate-cancer survivors who smoked had an increased risk of long-lasting defecation urgency, diarrhea, the sensation of bowel not completely emptied after defecation and sudden emptying of all stools into clothing without forewarning compared to never smokers. We also found that men with loose stools and abdominal distension at least once a week had a higher prevalence of several long-lasting symptoms, such as defecation urgency, fecal leakage and sudden emptying of all stools into clothing compared to those with regular stools. Prostate-cancer survivors with abdominal distension at least once a week had an increased prevalence of unexpected passing of gas compared to those with regular stools. Finally, our data showed that mean absorbed dose of ionizing radiation to the anal-sphincter region of more than 40 Gy causes an increased occurrence of fecal leakage among irradiated prostate-cancer survivors.

Keywords: Prostate cancer, radiotherapy, late gastrointestinal toxicity

Correspondence: david.alsadius@oncology.gu.se

ISBN: 978-91-628-8414-7