Multiparametric MRI for focal dose escalation in prostate cancer radiotherapy

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Issue Date: 2021-06-30

Stellingen behorende bij het proefschrift getiteld

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1. To establish delineation guidelines for the intraprostatic tumor on multiparametric MRI, clinical outcome data of focal boosting therapies should be considered in balancing the relative importance of the used MRI sequences.
   (Chapter 2)
2. Given the complexity of focal dose-escalated treatment planning for prostate cancer, knowledge-based plan quality assessment is recommended to assist the planner in realizing the highest achievable dose to the tumor for a given patient anatomy.
   (Chapter 3)
3. When tumor probability modelling based on quantitative imaging is used for 'Dose Painting by Numbers', the planned dose distribution is insensitive to uncertainties in the measured image quantities.
   (Chapter 4)
4. Since no changes in quantitative MRI biomarkers can be found during focal dose-escalated treatment of prostate cancer, early response-based adaptation of the treatment is not expected to benefit outcome.
   (Chapter 5)
5. As long as delineation of the intraprostatic tumor requires a binary classification of microscopic tissue heterogeneities that are insufficiently represented in multiparametric images, interobserver variability of manual tumor delineations will remain.
   Van Houdt et al. J Magn Reson Imaging. 51, 1235–1246 (2020)
6. Multi-institutional research on quantitative MRI is frustrated by non-standardized scanning protocols.
7. Dose painting trials, redistributing the dose based on imaging biomarkers, need to reconcile a higher risk of local failure in de-escalated regions against potential toxicity reduction.
   Gurney-Champion et al. Radiother Oncol. 146, 66–75 (2020)
8. Hypofractionated focal dose escalation in the seminal vesicles is discouraged without intra-fraction motion management.
   Draulans et al. Radiother Oncol. 140, 131–142 (2019)
9. Reduced environmental impact of online medical conferences has a positive effect on health care. *
10. A household with two cars for commuting, lives or works at the wrong location.

* For additional information, please refer to *Faustini et al. Eur Respir J. 42, 304–313 (2013)*