The Danish Head and Neck Cancer Group (DAHANCA) 2020 radiotherapy guidelines

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Article info
Article history:
Received 13 July 2020
Received in revised form 21 July 2020
Accepted 21 July 2020
Available online 8 August 2020
Keywords:
Head and Neck Cancer
Guidelines

Background
The Danish Head and Neck Cancer Group (DAHANCA) was founded in 1976. Over the years the group successfully conducted clinical trials and has developed national guidelines for all aspects of the treatment of head and neck cancer. The first national recommendations for radiotherapy was included as an appendix to the DAHANCA 2 and DAHANCA 5 protocols [1,2] in 1979 and 1986, respectively. A thorough description of doses and treatment fields were in 1991 included in the large DAHANCA 6&7 randomized trial [3] and later in the DAHANCA 9 protocol [4].

The first DAHANCA radiotherapy quality assurance (QA) project was performed in 1997, and a formal QA group was established in 2002, responsible for the national evolution and dissemination of the guidelines. The 2004 edition introduced the CTV for postoperative radiotherapy and included an updated recommendation of elective nodal irradiation [5]. Guidelines for the use of IMRT, including fractionation and normal tissue constraints was included and used for the DAHANCA 10 and 18 trials [6–8], as well as in the imaging and hyperfractionation studies [9–12]. The fourth edition (2013) included a thorough revision of all chapters to comply with the ICRU 83 guidelines and to define QA parameters. Furthermore, a detailed list of sensitive normal tissues and constraints was added. Most importantly, the guidelines introduced the (5 + 5) mm concentric margin concept with an addition of 5 mm from GTV to CTV1 (high risk volume) and a further 5 mm to CTV2 (intermediate risk volume). A revision was approved in 2014 bringing the guidelines up to date with published evidence [13] and national guidelines for e.g. unknown primary tumor.

Impact of the 2013 guidelines
The simple, but reproducible concentric (5 + 5) mm geometric expansion of the GTV has shown to increase consistency of CTV delineation [14]. The 2013 guidelines have made international impact inspiring Gregoire et al. [15] and Lee et al. [16] to produce international guidelines for the delineation of CTV for all subsites of the larynx and pharynx. Gregoire and Lee thoroughly evaluated the DAHANCA guidelines in large international, multi-organizational settings. As a result, their guidelines have become the product of consensus between more diverse traditions and the simple DAHANCA principle [17–20]. As expected, the resulting guidelines are more complex.

The present 2020 version of the guidelines
In turn, DAHANCA has re-evaluated the Danish recommendations and a new version of the guidelines is presented here in the
Evensen JF, Sand Hansen H, Overgaard M, Johansen J, Andersen LJ, Overgaard J. We will continue to monitor our results closely. With the English majority of recommendations in the current guideline are level D. Furthermore, we plan an evaluation of our margins [28].

The delineation guidelines for organs at risk have been updated [21,22]. The nomenclature has been updated to align with the Santanam et al. guidelines [23]. Since the opening of the Danish Centre for Particle Therapy an introductory chapter on proton therapy has been added to describe the principles for application of the guidelines to proton radiotherapy, as DAHANCA has initiating the DAHANCA 35 randomized trial of photon versus proton radiotherapy with a model based enriched population of squamous cell pharynx and larynx cancer patients [24].

Nuclear medicine specialists, radiologists and clinical oncologists from all Danish Centres have agreed on common guidelines for the use of imaging for target volume delineation [25]. These guidelines have been incorporated into the radiotherapy guidelines.

The Danish Clinical Quality Program – National Clinical Registries (RKKP) constitutes the infrastructure of the Danish clinical quality registries and the Danish Multidisciplinary Cancer Groups (DMCC). All new national clinical guidelines must now be written in the same format and with a level of evidence behind any recommendation, graded according to AGREE-II [26]. As expected, the far majority of recommendations in the current guideline are level D.

Future and on-going projects

A new recommendation [27] for the selection of elective nodal areas will be reviewed in conjunction with a planned analysis of the regional recurrence pattern in a Danish population treated according to the guidelines. DAHANCA 34 (surgery versus radiotherapy) is including patients and their target- and normal tissue delineation as well as dose plans with be scrutinized according to the quality assurance criteria specified in the guidelines, during the first 4 fractions. Patients in DAHANCA 30 (nimorazole gene-signalized non-inferiorityRCT) and DAHANCA 35 (protons versus photons) will be retrospectively quality assured according to the guidelines. We are awaiting an analysis of an organ at risk delineation workshop and a dose audit, both performed in 2019. Furthermore, we plan an evaluation of our margins [28].

Conclusion

With the 2020 guidelines we aim for high quality standard treatment as well as reproducible treatment within clinical trials. We will continue to monitor our results closely. With the English translation of the guidelines we strive for international scrutiny and productive discussions.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.radonc.2020.07.037.

References


