Editors' pick

Risk factors for local failure following chemoradiation and magnetic resonance image-guided brachytherapy in locally advanced cervical cancer: results from the EMBRACE-I study

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What was your motivation for initiating this study?

Brachytherapy has a central role in the treatment of locally advanced cervical cancer. In the last decade, major progress has been achieved through the integration of MRI into the brachytherapy treatment planning process. This integration was investigated prospectively within the observational multicentre study EMBRACE-I. A central element of the EMBRACE-I study was the mandatory use of the target concept and dose reporting system that had been agreed upon by the Groupe Européen de Curiethérapie (GEC) and ESTRO with the International Commission on Radiation Units and Measurements (ICRU) in report 89 (ICRU-89), whereas the actual dose prescribed was at the discretion of the treating physician. The main motivation for the present analysis was to improve our understanding of which brachytherapy dose was necessary to achieve local tumour control based on the individual risk profile.

What were the main challenges during the work?

For EMBRACE-I in general: quality assurance (QA)! The QA process was very labour-intensive, because it comprised a dummy-run procedure followed by the individual evaluation of all the patients who were included from all centres, to ensure completeness and plausibility.

For this analysis specifically: the database! The EMBRACE-I database is huge and we needed to spend some time to understand the structure of the database and to become familiar with the number of variables it contained.

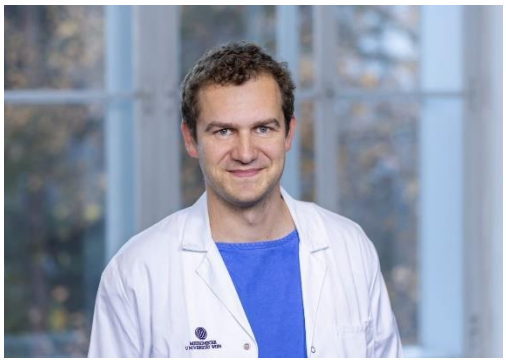
What are the most important findings of your study?

We were able to establish dose-response curves for brachytherapy dose prescription, based on the histology (squamous cell carcinoma vs. adenocarcinoma and adenosquamous carcinoma) and the size of the high-risk clinical target volume.

Furthermore, the study showed that most patients with persistent local disease at the three-month follow-up achieved a complete remission at a later time point without further treatment. This indicates that a watch-and-wait policy that involves a gynaecological exam and MRI may be considered for patients with residual disease that is regressing three months after treatment.

What are the implications of this research?

We hope that the results of the study will improve our understanding of MRI-guided adaptive brachytherapy in locally advanced cervical cancer and will enable further personalisation of this treatment method. The next generation of EMBRACE studies is currently being planned.



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