Editors' pick

Image guided adaptive brachytherapy (IGABT) for primary vaginal cancer: results of the international multicentre retroEMBRAVE cohort study

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What was your motivation for initiating this study?

Primary vaginal cancer is a rare disease, and as a consequence, evidence about treatment outcome is scarce and mainly comes from small, monocentric studies [1, 2]. The aetiology resembles primary cervical cancer, and therefore the treatment is mainly based on evidence from treatment of cervical cancer [2, 3]. In 2013, the gynaecological working group of the Groupe Européen de Curiethérapie and the European Society for Radiotherapy and Oncology (GYN GEC-ESTRO) formed a task group that aimed to introduce a common target concept for image-guided adaptive brachytherapy (IGABT) in the treatment of vaginal cancer, which has been published recently [4]. In preparation of this task, the study entitled retrospective international image-based adaptive brachytherapy for vaginal cancer (retroEMBRAVE) was conducted to collect clinical data from patients with primary vaginal cancer that had been treated with 3D IGABT in five European centres.

What were the main challenges during the work?

The main challenge was to investigate the dose-effect relationship for the tumour in a relatively low number of patients (n=148). Furthermore, due its retrospective design, we could only report severe (grade 3 or higher) toxicity as scored by the physicians; quality-of-life data were lacking.

What are the most important findings of your study?

The study shows that use of volumetric (CT and MRI-based) IGABT results in good local and pelvic control, respectively 86% and 83% at two years. Especially in T2-4 tumours, local control was found to be improved when compared with the results of historic, radiograph-based studies. In these larger tumours, a dose of ≥80Gy (cumulative dose in EQD2α/β10) to the clinical target volume was associated with a higher local control rate. Fortunately, this high dose did not lead to increased severity of late toxicity. This finding may be due to maximal sparing of the organs at risk, which was possible with 3D planning.

What are the implications of this research?

It appears that use of IGABT in primary cancer has additional value over use of standard radiation techniques, especially in the treatment of advanced (T2 and larger) tumours. The use of CT and MRI in brachytherapy planning enables dose escalation in the tumour, with maximal sparing of the organs at risk. However, all these findings warrant a prospective validation that applies the recently published common target concept and methodology for dose reporting in primary vaginal cancer. Due to this, we have planned a prospective study, named EMBRAVE, which will be initiated soon in selected centres and later will be disseminated to other centres.

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