

New benchmarks for radiotherapy in breast and gynaecological tumours

ESTRO 2020 will present two studies on potential new therapy standards for breast and cervical cancer

- Breast cancer patients can manage with just 5 fractions of adjuvant radiotherapy over one week after primary surgery according to the British FAST-Forward study. The current standard is 15 fractions in three weeks.
- The EMBRACE study led by Principal Investigator, Professor Richard Pötter and coordinated from Vienna (Austria) and Aarhus (Denmark) proves the value of magnetic resonance imaging guided adaptive brachytherapy (IGABT) in locally advanced cervical cancer. Local disease control in the pelvic area can be maintained over the long term and in a stable manner.

Brussels, 27 November 2020 – **The ESTRO 2020 congress, which will be online this year, will present two outstanding study results on breast and cervical cancer therapy: on the optimisation of radiological treatment for breast cancer patients and on technical advances in radiotherapy for cervical cancer. The FAST-Forward study has demonstrated reliable results with shorter adjuvant radiotherapy in breast cancer patients, while the EMBRACE study revealed excellent results with magnetic resonance imaging (MRI) guided adaptive brachytherapy (IGABT) in cervical cancer.**

Shorter radiation periods for breast cancer patients

The ESTRO Committee selected the **FAST-Forward study**, which will be presented at ESTRO's annual congress by Jo Haviland, The Institute of Cancer Research, London (UK), as the winning abstract. This study shows that 5 fractions of adjuvant radiotherapy over one week in breast cancer patients after primary surgery are just as effective as the current standard of 15 fractions in three weeks. The primary endpoint of the study was local tumour control.

Study design: Between November 2011 and June 2014, 4,096 patients with invasive breast cancer (pT1-3, pN0-1, M0) were randomly assigned (1:1:1) to receive radiotherapy either with 40 Gy in 15 fractions over 3 weeks, 26 or 27 Gy in 5 fractions over 1 week. The patients had first undergone breast conservation surgery (94%) or mastectomy. The average age of the patients was 61. 25% of the patients received adjuvant chemotherapy and 25% received a tumour bed radiotherapy boost with 16 Gy in 8 fractions or 10 Gy in 5 fractions.

Results: During a median follow-up of 71 months, 79 local relapses occurred. No significant difference between the study arms was observed: the hazard ratio for a local event was 0.86 (95% CI 0.51-1.44) for 27 Gy versus 40 Gy and 0.67 (0.38-1.16) for 26 Gy versus 40 Gy. Non-inferiority of 26 Gy and 27 Gy compared with 40 Gy in terms of local tumour control was demonstrated in statistical analyses.

Marked normal tissue effects at 5 years were very low in all three study groups with an overall prevalence of 1.5%. The 5-year prevalence of moderate or marked clinician-assessed normal tissue effects in the breast was 9.9% in the 40 Gy arm, 15.4% in the 27 Gy arm and 11.8% in the 26 Gy arm.

"Our findings demonstrate significant benefits to both patients and healthcare systems, said Professor Murray Brunt, Chief Investigator, from the School of Medicine of the University of Keele in Staffordshire. The Royal College of Radiologists (RCR) has held a consensus meeting following the publication of our research and the new guideline adopts 26 Gy in 5 fractions over one week as the new standard regimen for breast radiotherapy."



MRI guided brachytherapy in cervical cancer

"Results of the prospective, multicentre, international observational EMBRACE study indicate stable, long term local disease control in the pelvic area throughout all stages with limited relevant morbidity under MRI guided brachytherapy in locally advanced cervical cancer (coordinated by R. Pötter, C. Kirisits, Vienna, Austria and K. Tanderup, J. Lindegaard, Aarhus, Denmark)."

Study design: 1,416 patients with stage IB-IVA and IVB (in para-aortic lymph nodes) tumours were enrolled in the study. They were treated in 24 centres between 2008 and 2015. Treatment involved definitive external radiotherapy (EBRT) with 45–50 Gy and parallel administration of cisplatin, followed by MRI guided adaptive brachytherapy according to the 2005 GEC ESTRO recommendations.

Results: During the median follow-up of 51 months, 363 patients died, with 281 due to progressive tumour disease. After 5 years, the local control rate was 92%, the pelvic control rate was 87% and the overall survival rate was 74%. In comparison to the existing literature, patients with advanced tumours (FIGO stage IIIB and IVA) benefitted from IGABT. By adapting radiation to the individual tumour progression, side effects could be minimised among the entire cohort.

"By combining reproducible treatment protocols with state-of-the-art technology, our primary objective was to develop a clinically feasible therapy for women with cervical cancer – with effective applicator positioning and radiation treatment planning", said Professor Christian Kirisits from the Medical University of Vienna. His colleague Dr. Maximilian Schmid adds: "The results of the EMBRACE study can be valuable as a benchmark for everyday practice and as a starting point for follow-up studies. We are still targeting to further increase the tumour control rate while keeping the side effects as low as possible".

ESTRO wants to strengthen position of radiation oncology in Europe

Through its online annual congress in 2020, taking place from 28 November to 1 December 2020, the European Society for Radiotherapy and Oncology (ESTRO) will take a further step in strengthening the position of radiation oncology in Europe. In line with ESTRO's vision for 2030 "Radiation Oncology. Optimal Health for All, Together", the Society focuses on innovations and scientific findings from clinical radiation oncology, radiobiology, physics and technology, patient care, radiotherapy and brachytherapy.

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Sources

Abstract OC-0610: *FAST-Forward phase 3 RCT of 1-week hypofractionated breast radiotherapy: 5-year results.* A. Murray Brunt at the ESTRO2020 Online Congress of the European Society for Radiotherapy and Oncology (ESTRO) from 28 November – 1 December 2020.

Abstract E20-0711: *MRI guided adaptive brachytherapy in locally advanced cervical cancer: Overall results of EMBRACE I.* Richard Pötter at the ESTRO2020 Online Congress of the European Society for Radiotherapy and Oncology (ESTRO) from 28 November – 1 December 2020.

