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Intraoperative radiotherapy (IORT) during BCS for Bulgarian Breast Cancer Patients. Report from a Breast Unite at Medical University of Sofia

Theophil Sedloev, M Koleva, I Terziev, S Usheva, T Pirdopska, Ts Spiridonova, J Spirdonov, I Gabrovski, S Kovacheva, G Ivanov and B Korukov

Medical University of Sofia, Bulgaria

Introduction & Aim: Intraoperative Radiotherapy (IORT) is a technique for Accelerated Partial Breast Irradiation (APBI). IORT offers many advantages comparing to Whole Breast Irradiation (WBI) and other techniques for APBI, including shorter treatment duration and decreased radiation toxicity. Despite the controversies, the application of IORT is increasing nationally. This improves patient's cosmetic outcome at minimal risk of recurrence and treatment-related toxicity. Establishing IORT as a therapeutic modality requires a multidisciplinary approach to patient selection, work up, surgery, radiation protocols, chemotherapy and patient follow up. In 2015, we launched the use of IORT during conservative surgery in patients with early breast cancer in Bulgaria. The aim of this study is to investigate the outcomes of application of IORT in Bulgarian patients with early Breast Cancer (BC) treated in Medical University Sofia, Breast Unit.

Methods: The patients were selected following the criteria of the Groupe Européen de Curiethérapie-European Society for Therapeutic Radiology and Oncology (GEC-ESTRO) breast cancer working group (2009). The IORT procedure was performed with the electronic brachytherapy device INTRABEAM® (Carl Zeiss Surgical GmbH, Oberkochen, Germany).

Results: Between December 2015 and May 2018, 54 patients with early BC aged between 44 and 82 years were diagnosed and treated in our breast unit. All patients underwent Breast Conserving Surgery (BCS) and sentinel lymph node biopsy. A single dose low-energy X-rays (max 50 kV, 20 Gray) was applied in the tumor bed for between 8 and 36 minutes, according to the size of the tumor and the applicator. All patients were discharged on the first or second postoperative day. During the follow up time of 30 months there were no signs of local recurrence.

Conclusion: BCS combined with IORT in well selected patients with early breast cancer is innovative, save, feasible and economically effective technique. It attracts patients because of its significant improvement in convenience and excellent cosmetic outcome.

Discussion: One of the most important advantages of IORT is the delivery of a single fraction of radiotherapy at the time of surgery, directly into either the tumor cavity or the index quadrant. Among the various APBI techniques, the largest randomized controlled trials were conducted on IORT. Along with the data of the big trials our results are encouraging, because no recurrence was observed. In most of the cases the application of IORT prolonged the surgical time with 18-28 minutes, but reduced the waiting time for WBI, the duration of whole treatment and finally the hospital costs.

Biography

Theophil Sedloev is a Chief of the Breast Unit at the Department of Surgery, Medical University Sofia, Bulgaria. His professional interests include surgical treatment of the breast cancer, breast conserving and oncoplastic surgery with intraoperative radiotherapy for early breast cancer, neoadjuvant chemotherapy and surgery of locally advanced breast cancer. He has published more than 65 papers in reputed journals and has been serving as an Editorial Board Member.

theosed@abv.bg

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