ORIGINAL ARTICLE
The role of high-dose-rate brachytherapy boost in breast-conserving therapy: Long-term results of the Hungarian National Institute of Oncology
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ABSTRACT
Aim: To report the long-term results of high-dose-rate (HDR) brachytherapy (BT) boost for breast cancer patients treated with conservative surgery and radiotherapy.

Materials and methods: Between 1995 and 2007, 100 early-stage breast cancer patients received an HDR BT boost after conservative surgery and whole breast irradiation. Ten patients (10%) received a single-fraction HDR boost of 8–10.35 Gy using rigid needles, while 90 (90%) were treated with a fractionated multi-catheter HDR BT boost. The latter consisted of 3×4 Gy (n = 19), 3×4.75 Gy (n = 70), and 2×6.4 Gy (n = 1). Breast cancer related events, cosmetic results and side effects were assessed.

Results: At a median follow-up time of 94 months (range: 8–152) only 7 (7%) ipsilateral breast failures were observed for a 5- and 8-year actuarial rate of 4.5 and 7.0%, respectively. The 8-year disease-free, cancer-specific, and overall survival was 76.1, 82.8, and 80.4%, respectively. Cosmetic outcome was rated excellent in 17%, good in 39%, fair in 33%, and poor in 11%. Data on late radiation side effects were available for 91 patients (91%). Grade 3 fibrosis and grade 3 telangiectasia occurred in 6 (6.6%) and 2 (2.2%) patients, respectively. In univariate analysis only positive margin status had a significant negative effect on local control.

Conclusions: HDR BT boost using multi-catheter implants produce excellent long-term local tumour control with acceptable cosmetic outcome and low rate of grade 3 late radiation side effects.

Keywords: Breast-conserving therapy, Radiotherapy, High-dose-rate brachytherapy, Boost