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COMMENTARY

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# Partial breast irradiation for ductal carcinoma in situ: The Goldilocks principle?

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The outcome of patients treated with breast-conserving surgery affected by ductal carcinoma in situ (DCIS) has considerably improved thanks to better imaging, clinical-pathologic correlation, surgical localization, and attention to margins, postoperative radiation therapy (RT) and, to a lesser extent, by adjuvant endocrine treatments. Due to the potential adverse events related to these interventions, de-escalation attempts were undertaken for postoperative RT and, and more recently, surgical approaches without affecting survival. Even though low-risk DCIS has been often considered as an indolent disease for which any treatment might be redundant, a significant increase in long-term mortality in case of an invasive breast tumor recurrence (BTR) was demonstrated.[1]

RT has been the mainstay treatment for DCIS after breast conservative surgery. Updates of recently published studies confirmed the long-term benefit of RT in terms of local recurrence, without reaching a plateau over time.[2,3] Therefore, the omission of postoperative RT could represent a dangerous approach, caused by the systematic underestimation of its benefit.[4] At a median follow-up of 7.2 years, RTOG 9804 trial showed a BTR risk of 6.7% in the observation arm compared to 0.9% in the whole breast irradiation arm.[2] Similar results were observed in the ECOG 5194 trial among patients meeting similar very low-risk criteria, with the observation arm yielding a 6.1% and 14.4% risk of BTR at 6.7 and 12 years median follow-up, respectively.[3]

Partial breast irradiation (PBI) is a safe and effective treatment able to obtain an equivalent control rate in selected low risk invasive breast cancer patients.[5,6] For a long time, its effectiveness for DCIS has been debated, due to limited and conflicting published results and the intrinsic biologic nature of the disease with a persistent higher recurrence risk after breast conservation compared to its invasive counterpart. Therefore, up to now, PBI has not been considered recommended for DCIS according to both the American (ASTRO) and the European (GEC-ESTRO) radiation oncology societies' recommendations.[7,8]

However, when applying ECOG 5194 inclusion criteria[3] to publish PBI series, a 5-year BTR risk of far below 4% was found.[9] Therefore, this acceptable observed rate of BTR in low-risk DCIS treated with wide local excision alone, combined with the encouraging results following PBI for this selected group of patients, led the ASTRO PBI task force to include these patients in the suitable group (screen-detected, low to intermediate nuclear grade, ≤2.5 cm size, with margins negative at ≥3 mm).[9]

In view of the persisting lack of knowledge about biologic features and response to treatment, a thorough discussion with the patient on the benefits and the limitations of each treatment option should be held, emphasizing all possible implications of the different approaches. Even though data from randomized trials on PBI versus whole breast irradiation including DCIS patients are largely pending, and the follow-up time of the published results is too short to draw any definitive conclusions, we feel that PBI could present a reasonable compromise to reach the equilibrium between over-treatment by whole breast RT and under-treatment due to omission of RT for low-risk DCIS patients.

Since there will likely be no time for specific phase 3 trials designed for combining DCIS and PBI in this era of de-escalation of treatments for breast cancer patients, and pending results of studies to mature, a joint initiative for a pooled analysis of available data from existing randomized trials is strongly encouraged.

## CONFLICT OF INTEREST

None.

  

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