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AUTHOR'S REPLY

The decision to perform or omit sentinel lymph node biopsy during mastectomy for ductal carcinoma in situ should be tailored in accordance with preoperative findings

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We thank Drs. Yang and Lv for their valuable comments on our study. Our reply is as follows. First, as you mentioned, the follow-up period was extremely short, and this is a critical limitation of our study. We will continue to perform follow-up for all patients, and the additional results will be reported in the future. Second, of the five patients with sentinel lymph node (SLN) metastasis in this study, the final diagnosis was ductal carcinoma in situ (DCIS) in three patients. Although the pathologists knew that these three patients had SLN metastasis at the time of the postoperative diagnosis, the micro-invasive component could not be identified. Therefore, this is considered a limitation of the pathological evaluation. Additionally, because the micro-invasive components could not be identified at the final pathological examination, these three patients were strictly classified as those with a final diagnosis of DCIS in this study. However, these patients could have had occult invasive lesions, and the prevalence of upstaging to invasive ductal carcinoma (IDC) in this study might have been underestimated. If these three patients are included in those with IDC because of the existence of SLN metastasis, the prevalence of upstaging to IDC changes to 23.9% ($n = 54/226$). This modified prevalence is still consistent with previous reports in which the prevalence ranged from 8 to 38% [1–7]. In addition, we would like to emphasize the important fact that the existence of micro-invasion cannot be denied even if the final pathological diagnosis by routine examination is DCIS. Therefore, patients with a final diagnosis of DCIS should be appropriately followed up. In particular, patients with a final diagnosis of DCIS with preoperative high-risk factors for upstaging to IDC should be given close attention during follow-up. On the other hand, SLNs were assessed using a one-step nucleic acid amplification (OSNA) assay in this study. The OSNA assay is reportedly suitable to detect SLN metastasis, and its sensitivity and specificity are 90% and 96%, respectively [8, 9]. Osako et al. [10] reported that the OSNA assay could detect more micrometastasis than the conventional pathological method. Thus, the assessment of SLNs in this study might have been more precise than general conventional pathological examination. Third, because this was a retrospective study, the actual number of patients who could have been alternatively treated by breast-conserving surgery (BCS) was unclear. Moreover, the patients' mammography and magnetic resonance imaging (MRI) findings were not investigated in this study. These are also critical limitations of this study. The patients' willingness was reflected in the decision to select the surgical procedure at our institution. BCS was first proposed for patients with localized disease considered resectable by BCS. However, if patients hoped to undergo mastectomy, mastectomy was consequently selected. For such patients, additional preoperative examinations, such as MRI, to evaluate the extent of lesions was not routinely performed. If patients hoped to undergo BCS, we referred to the findings of mammography, ultrasound, or additional MRI. When lesions were suitable for BCS, BCS was consequently selected. However, when the preoperative findings suggested that an adequate margin could not be obtained by BCS because of the extent of the lesion, BCS was not performed even if the patients hoped to undergo BCS. Although the patients' mammography and MRI findings were not investigated in this study, the

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population of patients who could have been alternatively treated by BCS may have been nearly equal to the population of patients with a small mass or locally distributed non-mass abnormality assessed by ultrasonography. The prevalence of upstaging to IDC or SLN metastasis in such cases was notably low. Therefore, SLN biopsy may allow for omission of patients who could be alternatively treated by BCS.

Because SLN biopsy is not an entirely benign procedure, our conclusion was that the routine performance of SLN biopsy for all patients who will undergo mastectomy for DCIS, just because the procedure would be more difficult if undertaken later, is considered overtreatment. Preoperative risk factors for SLN metastasis should be stratified and the decision to perform or omit SLN biopsy should be tailored in accordance with preoperative findings. Although we cannot propose strict criteria for omitting SLN biopsy during mastectomy for DCIS, we propose omitting SLN biopsy for patients who have lesions of ultrasound category 0–3, who have neither a mass nor a non-mass abnormality detected by ultrasonography, or whose diagnosis was made based on a specimen obtained by methods other than core needle biopsy in accordance with our data. It would be our great pleasure if the readers of Breast Cancer use our data for shared decision-making with patients who will undergo surgical treatment for a preoperative diagnosis of DCIS.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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