Contemporary risk of local, regional and contralateral breast cancer recurrence

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Background: Follow-up of breast cancer patients aims to detect curable recurrence, and focuses on ipsilateral in-breast recurrence (LR), regional lymph node recurrence (RR) and contralateral breast cancer (CBC). The present study aimed to address contemporary loco-regional recurrence rates evaluating time trends and the role of contributing factors.

Material and methods: The Netherlands Cancer Registry was searched for all female patients diagnosed and operated for a unilateral primary breast cancer (pT1-2, anyN, M0) between 2003 and 2006. The 5-year risk of developing LR, RR and CBC were estimated using Kaplan Meier curves. Prognostic influence of various patient- and disease characteristics was assessed.

Results: A total of 35,006 eligible patients were identified. The 5-year rates of LR, RR, and CBC are presented in Table 1. The risk of CBC was higher than LR and RR. Over time, the rates decreased significantly for all three endpoints.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of events (n)</th>
<th>Rate (%)</th>
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<th>Rate (%)</th>
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<tbody>
<tr>
<td>2003</td>
<td>8,933</td>
<td>185 (2.4)</td>
<td>86 (1.1)</td>
<td>227 (3.1)</td>
<td>789 (9.8)</td>
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<tr>
<td>2004</td>
<td>9,048</td>
<td>181 (2.4)</td>
<td>83 (1.1)</td>
<td>190 (2.5)</td>
<td>783 (9.6)</td>
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<tr>
<td>2005</td>
<td>9,055</td>
<td>144 (1.8)</td>
<td>75 (0.9)</td>
<td>146 (2.1)</td>
<td>692 (8.5)</td>
<td></td>
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<tr>
<td>2006</td>
<td>7,970</td>
<td>131 (1.9)</td>
<td>50 (0.7)</td>
<td>146 (2.1)</td>
<td>561 (7.7)</td>
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<td>Overall</td>
<td>(n = 35,006)</td>
<td>641 (2.1)</td>
<td>294 (1.0)</td>
<td>752 (2.6)</td>
<td>2,825 (8.9)</td>
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</table>

*Local recurrence (ipsilateral in-breast recurrence + new primary)
Rates represent Kaplan Meier estimates.

The LR rate was lower with breast conserving surgery (BCS) vs. amputation (1.8% vs. 2.5%), T1a-b vs. T1c-T2 tumors (2.0% vs. 2.5%), ER+ vs. ER- tumors (1.8% vs. 3.5%) and inversely related with age (highest in pts. <35 yrs: 2.9%). The 5-year RR-rate was 0.9% for NO patients, and decreased from 1.0% to 0.7% over time. The risk of RR after amputation decreased from 1.8% to 0.9% over time, but was higher than after BCS (1.6% vs. 0.6%). Overall, the RR-rate was highest in the N > 1 group (1.4%) and the triple negative group (2.0%). The CBC-rate was lower for patients who received chemotherapy (CT) than for patients who did not (1.6% vs. 3.1%). The CBC-rate only decreased over the years in the CT-group (3.7% to 2.5%).

Conclusions: Loco-regional recurrence rates have decreased substantially in recent years and have become very low. For the vast majority of patients the risk of LR is substantially lower than the risk of CBC and the risk of RR is rarely larger than 1.0%. These low rates might reflect improvements in systemic treatment.

Disclosure: All authors have declared no conflicts of interest.

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