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The incidence and prognosis of synchronous and metachronous peritoneal metastases in patients with breast cancer: A nationwide, population-based study

M.J. de Neijs[1], N.A.D. Guchelaar[1], M. Kieboom[2], E. Oomen-De Hoop[1], M. Hofman[3], L. De Munck[4], I.H.J.T. De Hingh[5], A. Jager[1], R.H. Mathijssen[1]

[1] Medical Oncology Department, Erasmus MC Cancer Institute, Rotterdam, Netherlands, [2] Clinical and translational oncology, UMC - University Medical Center Utrecht, Utrecht, Netherlands, [3] Medical Oncology and Pulmonary Diseases Department, Erasmus MC - Daniel den Hoed Cancer Center, Rotterdam, Netherlands, [4] Oncologie, Integraal Kankercentrum Nederland, Utrecht, Netherlands[5] Departement of Surgical Oncology, Catharina Hospital Eindhoven, Eindhoven, Netherlands

Background

Peritoneal metastases (PM) from breast cancer are a relatively understudied entity with limited knowledge of its epidemiology. This nationwide, population-based study examines the incidence and overall survival (OS) in patients with synchronous metastatic breast cancer (MBC), as well as similar outcomes plus time to occurrence of PM in patients with metachronous MBC.

Methods

Patients diagnosed with synchronous MBC in the Netherlands between 2011 and 2022 were selected from the Netherlands Cancer Registry (NCR). Additionally, patients with primary nonmetastatic breast cancer diagnosed in 2003 or 2005 who developed metachronous MBC within 10 years were selected from the NCR. The primary endpoint of this study was the incidence of synchronous and metachronous PM, reported as the percentage of the total synchronous and metachronous MBC cohorts. OS for patients with synchronous MBC was analyzed using the Kaplan-Meier method, while OS for patients with metachronous MBC was assessed through time-dependent Cox analysis resulting in a hazard ratio.

Results

Among the 10,689 included patients with synchronous MBC , the incidence of PM as primary presentation was 321 (3.0%) with a median OS of 12.5 months (95% CI 8.8-17.7 months). Patients with synchronous MBC without PM as primary presentation had a median OS of 34.3 months (95% CI 33.1-35.4 months). Among the 3069 included metachronous MBC patients, 139 (4.5%) developed PM within 10 years of nonmetastatic breast cancer diagnosis. Within patients with metachronous metastases OS was shorter in patients diagnosed with PM as compared to those without PM (HR = 2.2, 95% CI 1.8-2.6, $p<0.001$). The median time from the initial breast cancer diagnosis to the development of metachronous PM was 69.7 months, whereas the median time to the diagnosis of e.g. bone metastases was 43.2 months.

Conclusions

In this nationwide cohort, the peritoneum is a relatively uncommon site of metastasis in both synchronous and metachronous MBC. Patients with either synchronous or metachronous MBC and PM had a significantly shorter OS than those without PM. Additionally, PM tended to be diagnosed late in the course of disease.

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