Treatment of breast cancer in the elderly: A prospective, population-based Swiss study


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ABSTRACT

Objectives: The primary objective of this population-based study is to describe the patterns of care of elderly patients with breast cancer (BC), and evaluate potential causative factors for the decrease in BC-specific survival (BCSS) in the elderly.

Patients and Methods: We included all or representative samples of patients with newly diagnosed BC from seven Swiss cancer registries between 2003 and 2005 (n=4820). Surgical and non-surgical BC treatment was analyzed over 5 age groups (<65, 65 to <70, 70 to <75, 75 to <80 and ≥80 years), and the predictive impact of patient age on specific treatments was calculated using multivariate logistic regression analysis.

Results: The proportion of locally advanced, metastatic and incompletely staged BC increased with age. The odds ratio for performing breast-conserving surgery (BCS) in stages I-II BC (0.37), sentinel lymph node dissection (SLND) in patients with no palpable adenopathy (0.58), post-BCS radiotherapy (0.04) and adjuvant endocrine treatment (0.23) were all in favor of patients ≥80 years of age compared to their younger peers. Only 36% of patients ≥80 years of age with no palpable adenopathy underwent SLND. In the adjusted model, higher age was a significant risk factor for omitting post-BCS radiotherapy, SLND and adjuvant endocrine treatment.

Conclusions: This study found an increase in incomplete diagnostic assessment, and a substantial underuse of BCS, post-BCS radiotherapy, SLND and adjuvant endocrine treatment.
1. Introduction

Over 40% of patients with breast cancer (BC) are diagnosed above the age of 65 years, and the incidence and mortality of BC in the elderly is still growing in developed countries. At the same time, treatment according to international recommendations is less often provided to the elderly patient with BC, and this concerns primary surgery as well as adjuvant radiotherapy and systemic therapy. Despite competing mortality from non-cancer disease in the elderly, undertreatment of BC has been linked to higher rates of disease recurrence and BC-specific mortality, particularly in the oldest patients with BC. The reasons for undertreating elderly patients with BC are various, including comorbidity, the perception that elderly patients have a more favorable risk profile, concerns about treatment compliance, tolerability and limited life expectancy. Accounting for these aspects, guidelines have been published by the International Society of Geriatric Oncology (SIOG) to support decision taking and individualization of treatment in the elderly patient with BC. These guidelines emphasize the value of breast surgery in operable patients, axillary lymph node dissection in clinical node-positive BC, sentinel lymph node dissection (SLND) in patients with clinically node-negative BC and post-BCS (breast-conserving surgery) radiotherapy or adjuvant endocrine treatment in estrogen receptor (ER)-positive BC. The decision to give adjuvant chemotherapy in early BC should not be an age-based decision, but rather be based on the individual biology of the disease, the estimated life expectancy, treatment tolerance and patient preferences. Controversy exists with regard to the use of adjuvant chemotherapy in postmenopausal ER-positive BC patients, and treatment benefits and risks have to be outweighed carefully. Until recently, few trials specifically evaluated problems in the elderly BC patient with regard to surgery, endocrine treatment, adjuvant chemotherapy, and adjuvant radiotherapy, and extrapolation from these trials to the entire elderly population must not be done without great caution, as study patients often are less frail than the average patient. This study prospectively looked at unselected elderly patients to assess their characteristics, describe clinical management of BC and evaluate potential causative factors for the decrease in BC-specific survival (BCSS) in the elderly.

2. Methods

2.1. Study Design and Data Collection

Patients with a diagnosis of BC between January 2003 and December 2005 were identified from 7 population-based cancer registries (Geneva, Valais, Ticino, St. Gallen-Appenzell and Grisons-Glurau) collected information on all cases between 2003 and 2005, 2 registries (Basel and Zurich) collected information on a representative sample of 505 randomly selected cases. Socioeconomic covariates included age, nationality (as proxy for migrant), region of residence, urban/suburban versus rural residence, affluence categorized into quartiles of median income and level of education (tertiary education versus other). Provider characteristics included patient discussion at a perioperative multidisciplinary tumor conference (MDTC) as described previously, involvement of the team in clinical research and estimated number of patients with breast cancer per surgeon and year. Breast cancer staging used the 6th edition of the American Joint Committee on Cancer staging criteria. The study was approved by the Institutional Review Board (IRB) of the Cantonal Hospital St. Gallen, where the study center is located.

2.2. Tumor Characteristics and Provider-Related Items

Patients were grouped into age groups <65, 65 to <70, 70 to <75, 75 to <80 and ≥80 years. The following clinico-pathological and socio-economic parameters were compared across the age groups: estrogen receptor (ER) expression (<10%, 10–50%, >50%, unknown), HER2-status, histological grading, tumor stage (ptTNM-stage in case tumorectomy was performed, cTNM otherwise), nodal status, lymphovascular invasion (positive lymphovascular invasion versus no invasion), MDTC and treatment within an institute participating in clinical research. Patient, tumor and provider-related characteristics were compared across the 5 age groups using the Wilcoxon trend test and the χ²-test where appropriate. As information on provider characteristics was lacking for the region of Ticino, and caseload per surgeon was partially lacking for the region of Basel, these data could not be used for multivariate data analysis.

2.3. Treatment of Early Breast Cancer

Minimum treatment was defined as local surgery of any type (if operable, not metastatic or locally advanced) or endocrine therapy (if ≥10% ER-expression and non minimal-risk BC as defined previously, and analyzed over the age groups. Subsequently, the following surgical and non-surgical treatment options of BC were similarly analyzed over the age groups: (1) type of final breast surgery in stages I–II BC <30 mm diameter, (2) application of any axillary surgery in stages I–II BC, (3) application of axillary surgery in clinically node-positive BC, (4) SLND in clinically node-negative BC, (5) post-BCS radiotherapy, (6) post-mastectomy (Mx) radiotherapy if recommended, (7) endocrine therapy in ER-positive (≥10% ER-expression), non minimal-risk BC, and (8) chemotherapy in ER-negative, node-positive or locally-advanced (cT3–4) BC. The predictive impact of patient age was calculated for performing post-BCS radiotherapy and adjuvant endocrine treatment in patients with ER-positive, non minimal-risk BC using multivariate logistic