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Sickness absence and disability pension following breast cancer − A population-based matched cohort study

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ABSTRACT

Purpose: To compare sickness absence and disability pension in a population-based cohort of women with breast cancer ($n = 463$) from 1 year pre-diagnosis until 3 years post-diagnosis with a matched control group ($n = 2310$), and to investigate predictors of sickness absence during the 2nd and 3rd year post-diagnosis.
Results: Following breast cancer, the proportion of disease-free women with sickness absence decreased post-diagnosis (1st−3rd year; 78%-31%-19%), but did not reach the pre-diagnostic level (14%; $P < 0.05$). Post-diagnosis, patients were more likely than controls to be sickness absent (1st−3rd year; $P < 0.001$). No between-group differences were observed for disability pension post-diagnosis ($P > 0.05$). Among patients, chemotherapy, baseline fatigue and pre-diagnosis sick days predicted sickness absence during the 2nd, 3rd, and 2nd and 3rd year post-diagnosis, respectively ($P < 0.05$).
Conclusions: Breast cancer is associated with increased sickness absence 3 years post-diagnosis. In a clinical setting, prevention and treatment of side effects are important in reducing long-term consequences.

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Introduction

In Sweden, breast cancer (BC) represents about one third of all female cancers with more than 8000 incident cases in 2012 [1]. Advances in BC management have improved survival [2], and today in Sweden, more than 90,000 women who have once been diagnosed with BC are still alive [3]. About half of patients are in

working age at the time of diagnosis [1]. To further improve BC management, research on the consequences of BC for return to work is important.

The majority of women affected by BC in working age return to work post-diagnosis [4–9]. Compared with other cancer diagnoses [10,11], the time to partial or full return is often shorter among women with BC. However, women with BC are more often sickness absent both 1 [10,12], 3 [13] and 5 [13,14] years post-diagnosis, and have a higher risk of disability pension (DP) [13,15,16] compared with women in the general population. Factors primarily shown to be associated with sickness absence (SA) or no return to work include a more advanced cancer stage [5,12,13], chemotherapy [4,8,9,12,13,17] and old age [5,7,9,17], while the results on other factors (e.g. comorbidity, education and marital status) are more divergent. A variety of methods have been used to study SA, and few studies have combined register-based social insurance data

with clinical data [4,13], or included data on health-related quality of life (HRQoL) [4,9]. Furthermore, there is a lack of register-based studies including comparisons with the general population [10,13–16] and pre-diagnosis sick days [10,13,14], precluding assessment of the effect of a BC diagnosis on subsequent SA and DP.

The present study included a population-based cohort of women registered in the Breast Cancer Quality Register (BCQR) in the Uppsala-Örebro health care region in Sweden. In a previous study [9] including the same cohort, we observed that one in four women did not work or reported decreased working time 16 months post-diagnosis. Within 3 years post-diagnosis, we observed less consistent improvements in HRQoL among women who stopped or decreased working time than among women with an increase/no change [18]. In the present study, we combined clinical register and questionnaire data with information from a social insurance register. The study aimed to 1) examine SA and DP from 1 year prior to the BC diagnosis until 3 years post-diagnosis compared with a matched control group, and 2) investigate predictors of SA among patients during the 2nd and 3rd year post-diagnosis.

Material and methods

Data sources

We linked data from four different registers (Fig. 1), which was made possible by the unique ten-digit identity number assigned to all residents of Sweden [19].

The National BCQR is administered by six regional cancer centers and contains information on disease- and treatment-specific characteristics [20]. The register in the Uppsala-Örebro Region started in 1992 and has a level of completeness exceeding 98% of all incident cases of BC in the region, the total population of which is approximately 2 million (about 20% of Sweden's total population).

The National Population Register is the basic register of the population in Sweden containing vital statistics on e.g. date of birth, sex and place of residence [19].

The Swedish Cancer Register was introduced in 1958 [21]. For all health care providers, it is mandatory to report all incident cases to the register.

The Statistics and Results Database (Swedish acronym: STORE) is managed by the Swedish Social Insurance Agency (SSIA) [22]. The database contains information on social insurance benefits received by Swedish residents. Administrative data are made available for analysis through *Micro Data for Analysis of Social Insurance* (MiDAS). The social insurance system aims to provide financial security by compensating the individual for income losses due to work incapacity [23]. For employees, the employer is responsible for compensation during the first 2 weeks of absence, and there are no official records available during this period. Subsequently, if a person is still not able to work, the SSIA is responsible for reimbursement, and a person can be granted full (100%) or partial (25%, 50% or 75%) sickness benefit (referred to as SA in the present study; including rehabilitation benefit during periods of vocational rehabilitation). Persons whose work capacity is considered to be permanently reduced by at least one quarter are entitled to full or partial sickness compensation (referred to as DP in the present study).

Study population and procedure

Women with BC: Women (all ages) who were registered in the regional BCQR were asked to participate in a questionnaire study. The study participants and procedures have been fully described in previous publications [9,18,24]. Given the Swedish mean for old age

retirement (age 65 years) [25] and our aim to follow the women until 3 years post-diagnosis, we set an age limit of <63 years at diagnosis. Among 735 women approached, 63% ($n = 463$) participated in the 2nd follow-up and were included in the final study sample (Fig. 2).

Control group: each patient was individually matched to eight women registered in the National population register ($n = 3704$). Matching criteria were age and county of residence at the time of the patients' diagnosis. In a subsequent step, record linkage to the Swedish cancer register was carried out to ensure that selected controls were free from BC. Among these BC-free controls, the SSIA randomly selected five controls for each patient. Due to a previous or present BC diagnosis, one patient had three controls, and three patients had four controls, resulting in a final study sample of 2310 controls (Fig. 2)

Measures

The main outcomes were SA and DP from 1 year pre-diagnosis until 3 years post-diagnosis based on data obtained from MiDAS (Fig. 1). Information on the type of reimbursement (SA and/or DP), and the extent (25%, 50%, 75% or 100%) and number of days was retrieved. Net sick days (number of sick days multiplied by the extent) was used to measure SA and DP.
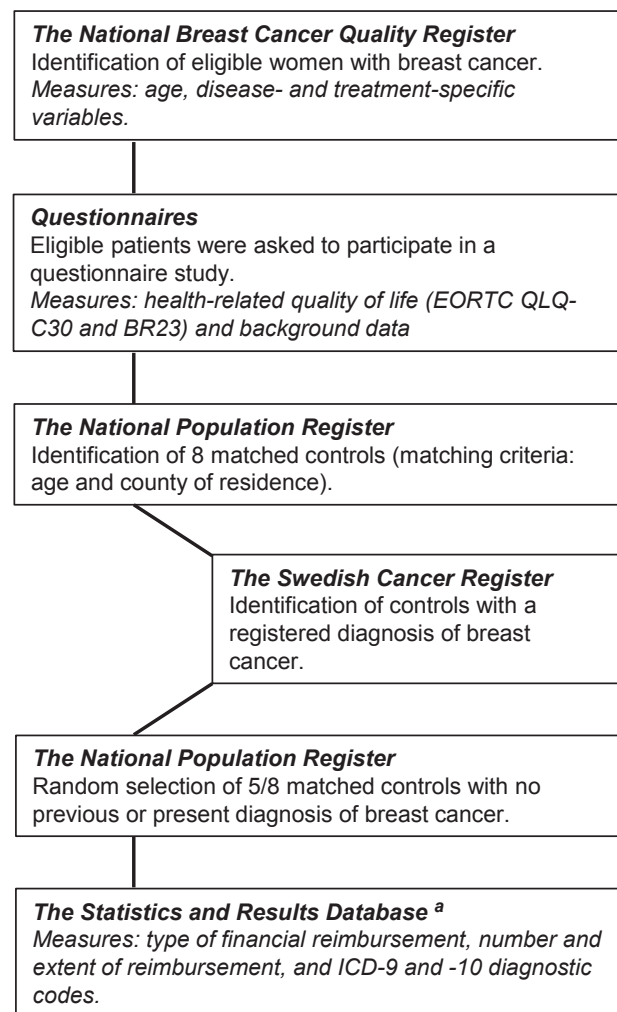

Fig. 1. Data sources and measures used in a population-based cohort study of women with breast cancer and a matched control group in Sweden. [a]Administrative data are made available for analysis through *Micro Data for Analysis of Social Insurance* (MiDAS).