

Determining breast cancer recurrence following completion of active treatment: A novel approach using linked administrative health data

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Objectives

Although outcomes for the majority of women diagnosed with primary breast cancer are good, with five-year survival exceeding 90%, some women will experience cancer recurrence and ultimately die from the disease. It is important for patients, clinicians and health service planners to know the risk of recurrence once initial treatment for primary breast cancer is completed. However, none of Australia's State or Territory cancer registries routinely report on cancer recurrence which could be used to evaluate this issue. To address this absence of direct reporting, we aimed to determine the incidence of cancer recurrence in Australian clinical practice after completion of treatment for primary breast cancer, using a range of linked health data sources.

Approach

We performed a retrospective cohort study using linked health data from New South Wales (NSW), Australia. Data were linked from six data collections: i) Cancer Registry, ii) Admitted Patient Data Collection, iii) Pharmaceutical Benefits Scheme claims, iv) Medicare (outpatient) claims, v) Death Registry; and the vi) NSW 45 and Up Study. We identified 2416 women diagnosed with primary invasive breast cancer during 2003-2008 in NSW who had not had a recurrence by 18 months post-diagnosis. Unit-level hospital, pharmacy and outpatient claims were used to identify services indicative of recurrence. Incidence of recurrence was calculated and multivariate Cox regression used to identify baseline and active treatment characteristics predictive of cancer recurrence up to six years post-diagnosis.

Results

A total of 217 women (9.0%) had a hospital, pharmacy or outpatient claim indicating breast cancer recurrence between 18 months and six years post-diagnosis. Overall annual cumulative incidence of recurrence was 3.3%. Recurrence was significantly higher for women with node-positive (4.8% vs. 2.5% annually, adjHR=1.7, 95%CI=1.3-2.3) or hormone receptor-negative (3.8% vs. 3.1% annually, adjHR=1.3, 95%CI=1.0-1.7) tumours. Women with tumours >2cm at diagnosis were more likely to experience recurrence within six years compared with those with a smaller initial tumour (4.8% vs. 2.7% annually, adjHR=1.5; 95%CI=1.1-2.0).

Conclusion

Women with breast cancer in this Australian cohort experienced recurrence at 3.3%pa in the years following completion of treatment. Those at greatest risk of recurrence were women with node-positive or hormone-receptor negative tumours, or tumours >2cm at initial diagnosis, consistent with international findings. This method for ascertaining breast cancer recurrence can be used to assess population-level changes over time and to investigate the impact of specific treatments on outcomes in the absence of available Cancer Registry data.

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