Breast cancer is the most common cancer in women worldwide. In North America, it is the second leading cause of cancer-related death. HER2 is a transmembrane receptor tyrosine kinase belonging to the epidermal growth factor receptor family, which is overexpressed in approximately 20% of all breast cancers. Prior to the development of HER2-targeted therapy, HER2-positive breast cancer had a poor prognosis, with higher mortality in early-stage disease, reduced time to relapse and an increased incidence of metastases. Trastuzumab is a monoclonal antibody that targets the extracellular domain of the HER2 receptor. In the absence of level I evidence, this study attempted to compare the outcomes of women with HER2-positive T1a or b node-negative disease who received adjuvant trastuzumab to those who did not receive adjuvant trastuzumab.

Objectives

To assess the outcomes of women with HER2-positive T1a/bN0 breast cancer who received adjuvant trastuzumab in Saskatchewan.

To identify the factors correlated with recurrence

to determine the rate of use of adjuvant trastuzumab in patients with HER2-positive T1a or b node-negative disease and the factors correlated with adjuvant trastuzumab.

It was a retrospective multicenter population-based cohort study. The study population included adult women with histologically documented HER2-positive T1a/bN0M0 breast cancer, diagnosed between January 2008 and December 2017 in the province of Saskatchewan, Canada.

A multivariate Cox proportional hazard regression analysis was performed to assess the correlation between adjuvant trastuzumab use and the outcomes of patients with HER2-positive T1a/bN0M0 breast cancer.

The following variables were examined for their prognostic significance: age (<50 vs. ≥50 years), major comorbid illness, performance status (ECOG 0 vs. >0), smoking status, estrogen and progesterone receptor status (positive vs. negative), tumor size as a continuous variable, T status (T1a vs. T1b), tumor grade (III vs. III), margin, type of surgery (lumpectomy vs. mastectomy), adjuvant endocrine therapy, and adjuvant radiation.

Results

Overall, 39 (43%) women who received adjuvant trastuzumab in combination with chemotherapy were in the treatment group, and 52 (57%) women were in the control group.

Both groups were comparable, although women who received trastuzumab were significantly younger than those in the control group (median age 57 vs. 65 years, p = 0.02). In addition, 92% of women who received adjuvant trastuzumab had T1b disease compared to 40% of women in the control group, and the mean tumor size was 7.8 ± 2.0 and 5.3 ± 2.6 mm, respectively (p < 0.0001).

Overall, seven (8%) women developed breast cancer recurrences, with one (3%) in the trastuzumab group and six (12%) in the control group (p = 0.23).

Median DFS was not reached. However, the estimated 5-year DFS was 94.8% in the trastuzumab group compared to 82.7% in the control group (p = 0.22; Figure 2A). Five-year invasive breast cancer-free survival was 97.4% in the trastuzumab group and 94.2% in the control group (p = 0.29). The median OS of the control group was 10.6 years, whereas median OS was not reached in the trastuzumab group. Five-year overall survival was 98.4%, in the control group versus 100% in women who received adjuvant trastuzumab (p = 0.038; Figure 2B).

Figure 2A

Figure 2B

Conclusion

The results suggest that adjuvant trastuzumab confers some benefit in patients with early-stage breast cancer with a smaller tumor size and node-negative disease and highlight the need for future clinical trials to further investigate the role of adjuvant trastuzumab in early-stage T1a and T1b node-negative HER2-positive breast cancer.

Our study showed that younger women and those with T1a/bN0 disease tend to receive adjuvant trastuzumab.

Adjuvant trastuzumab was associated with an improvement in outcomes and fewer survival events.

References


