Comparative Survival Analysis of Breast Cancer Patients Treated with Targeted and Conventional Therapies in the US: A Real-World Study

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Objective

This study aims to perform a comparative survival analysis of breast cancer patients treated with targeted and standard therapies to understand the relative efficacy of targeted therapy over conventional treatments.

Methodology

- Optum® de-identified Market Clarity data was utilized to identify females aged ≥ 18 years with breast cancer, using ICD-10 diagnosis codes. The first diagnosis date between January 2017 and December 2020 was defined as the index date.
- Patients with a history of any cancer diagnosis during the 12-month baseline period were excluded.
- Patients receiving breast cancer treatment within 6 months of diagnosis were categorized into two groups:
  - **Targeted Therapy:** Patients who started on targeted therapy (and received a minimum of 2 cycles) or switched from standard therapy within 6 months.
  - **Standard Therapy:** Patients who received only standard therapy (and received a minimum of 2 cycles) within 6 months.
- The first therapy date was defined as the treatment initiation date.
- Continuous eligibility was ensured during the 12-month baseline period and between the index date and the treatment initiation date.
- Mortality rates were examined, and a 2.5-year survival analysis using the Kaplan-Meier method post-therapy initiation was performed to compare outcomes between the two treatment groups.

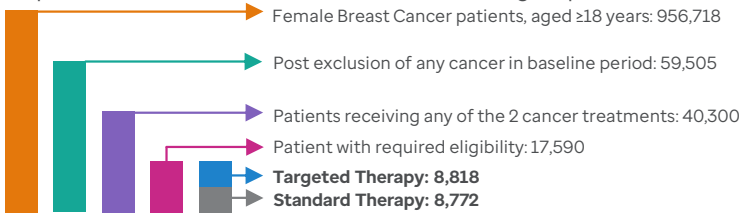

Figure 1. Patient Attrition

Results

- A total of 17,590 breast cancer patients received treatment post-diagnosis, with a mean age of 61.94 years (SD 12.22).
- The treatment groups comprised 8,818 patients who received targeted therapy and 8,772 patients who received standard therapy.
- Patients who received targeted therapy exhibited a significantly lower all-cause cumulative mortality rate at 2.5 years compared to patients who received standard therapy, 3% vs 4.85% (p=0.04) (**Figure 2**).

Results

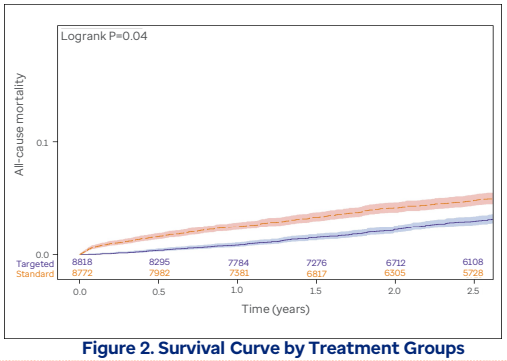

Figure 2. Survival Curve by Treatment Groups

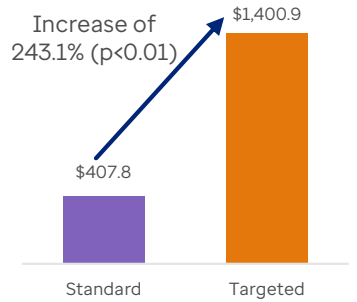

Figure 3. Average Per Patient Per Month Cost Distribution by Treatment Groups

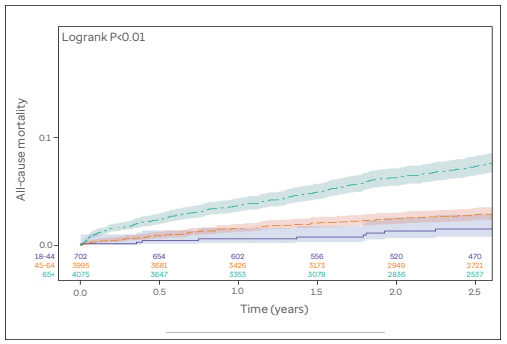

Figure 4. Survival Curve for Standard Therapy by Age Category

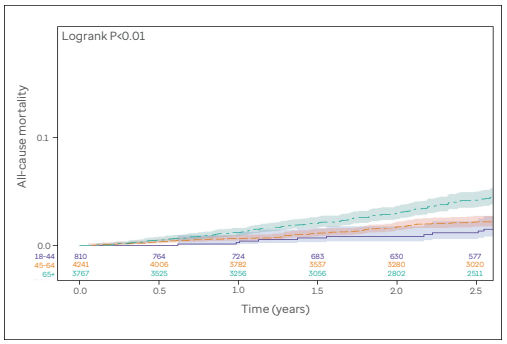

Figure 5. Survival Curve for Target Therapy by Age Category

- Average Per Patient Per Month Cost (PPPM) increased from $407.8 for standard therapy to $1,400.9 for targeted therapy (p<0.01) during 2.5 years follow-up period (**Figure 3**).
- Age group analysis shows that patients aged ≥65 years treated with targeted therapy exhibited a significantly lower all-cause cumulative mortality rate at 2.5 years compared to patients treated with standard therapy, 4.25% vs 7.35% (p<0.01) (**Figures 4 and 5**).

Conclusions

- This research underscores the significance of targeted therapies in treating breast cancer patients.
- This study offers valuable insights into the effectiveness of targeted therapies outside controlled clinical trials. Further analysis will be conducted using the Cox proportional hazards model to gain a more nuanced understanding of patient survival over time.

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