Breast Cancer Incidence Rate and Trastuzumab (Herceptin) Use Among 10 Million Commercially Insured Members

Background

• Trastuzumab (Herceptin), a humanized monoclonal antibody targeting human epidermal growth factor receptor 2 (HER2), was approved in 1998 for the treatment of HER2-positive breast cancer. Approval was extended in 2006 for HER2-positive early stage breast cancers in combination with primary chemotherapy (neoadjuvant) and in 2010, for HER2-positive metastatic breast cancers in combination with paclitaxel (Taxol) and a taxane (Taxotere).
• A number of additional anti-HER2 agents have subsequently been approved for HER2-positive breast cancer (Table 1), and adjuvant or neoadjuvant use of each of these newer agents has been assessed in commercially insured populations. However, the proportion of commercially insured members receiving all of the newer anti-HER2 agents is unknown. In this analysis, members of a large health plan were assessed for the use of commercially available anti-HER2 agents, including trastuzumab.

Methods

• Part One: To determine the proportion of members with early-stage breast cancer who received trastuzumab, the research team used data from a large health plan spanning 2010–2012 to analyze claims for the drug over the prior 261 days, consistent with all commercial members younger than 65 years insured by 11 health plans who had a claim for breast cancer surgery (based on a diagnosis code for breast cancer surgery and a procedure code for lumpectomy or mastectomy), or a procedure code for neoadjuvant therapy, or a procedure code for neoadjuvant chemotherapy, and who met additional eligibility criteria (Table 2) were included in the denominator.

Objective & Purpose

To estimate the number of members likely to be receiving trastuzumab chemotherapy in a commercially insured population by responding to:

1. The proportion of early-stage breast cancer patients followed for more than 2 years before and after surgery who were treated with an adjuvant chemotherapeutic agent;
2. The incidence rate of primary breast cancer surgery, by surgery for the initial staging of breast cancer, and a procedure code for lumpectomy or mastectomy for early-stage breast cancer, and a procedure code for neoadjuvant chemotherapy and a procedure code for lumpectomy or mastectomy for early-stage breast cancer that received trastuzumab chemotherapy; and
3. The incidence rate of new episodes of trastuzumab chemotherapy, an estimate of demand for and anti-HER2 therapy, and the proportion that can be treated with the early-stage breast cancer (neoadjuvant) and early-stage breast cancer (chemotherapy) (Tables 3 and 4).

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Part One: Proportion of early-stage breast cancer that review received trastuzumab

| Included Members | Total | % of Members Receiving Trastuzumab
<table>
<thead>
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<tbody>
<tr>
<td>Total Members</td>
<td>6,000,000</td>
<td>5,000,000 (63.84%)</td>
</tr>
<tr>
<td>Early Stage - Adjuvant</td>
<td>2,000,000</td>
<td>1,500,000 (63.74%)</td>
</tr>
<tr>
<td>Early Stage - Neoadjuvant</td>
<td>2,000,000</td>
<td>1,500,000 (63.74%)</td>
</tr>
</tbody>
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Part Two and Three: To estimate the 12-month incidence rate, a sample was selected consisting of approximately 6 million commercially insured members younger than 65 years who were insured by 11 health plans spanning 2010–2012 (Table 3).

Part Two and Three

1. Percentage of each membership calendar year, members with at least one month eligibility who were identified for continuous eligibility in the prior calendar year.
2. Percentage of members with early-stage breast cancer surgery who had a procedure code for neoadjuvant chemotherapy and a procedure code for lumpectomy or mastectomy within 30 days of surgery for early-stage breast cancer.
3. Percentage of early-stage breast cancer surgery members with at least one month eligibility who were identified for continuous eligibility in the prior calendar year.

Results

• The proportion of early-stage breast cancer surgery members with at least one month eligibility who were identified for continuous eligibility in the prior calendar year was 82.3%.

Figures

Figure 1.

• Figure 1: The distribution of members with early-stage breast cancer surgery who had a procedure code for neoadjuvant chemotherapy and a procedure code for lumpectomy or mastectomy within 30 days of surgery for early-stage breast cancer.

Figure 2.

• Figure 2: The proportion of members with early-stage breast cancer surgery who had a procedure code for neoadjuvant chemotherapy and a procedure code for lumpectomy or mastectomy within 30 days of surgery for early-stage breast cancer.

Conclusions

• The proportion of all members with early-stage breast cancer who received trastuzumab was 5.6%, while the proportion of members with early-stage breast cancer who received trastuzumab chemotherapy was 4.8% (false negatives and false positives) by the researchers.

References


Limitations

• This study included primary breast cancer surgery as a proxy for early-stage breast cancer.
• Primary breast cancer was defined as any breast cancer surgery claims in the previous year. This approach does not capture cases of breast cancer without surgery, or the full spectrum of disease progression.

A note on funding: This research was funded by Prime Therapeutics LLC, a pharmacy benefit manager. This research was conducted to better understand patterns of inpatient and outpatient utilization of anti-HER2 agents. For example, observed a distribution of number and cost of therapy for different anti-HER2 indications could be multiplied by the estimated incidence rates.

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