Methods

• Actual medical claims analysis
• Data were handled in compliance with HIPAA and a Certificate of Exemption was obtained from the IRB
• Total of 54,430,837 procedure claims from 350,050 cancer patients
• Data from Ingenix Consulting (Eden, MN)
• Only breast cancer patients with a date of service from May 1, 2006 – April 30, 2009 were included in the analysis

Results

• Three month look-back period was used; those with taxane after July 31, 2006 were included to identify ‘new starts’
• Identified all neutropenia episodes (including febrile neutropenia, identified by ICD-9 codes) within 21 days after taxane administration and compared each of the following between taxane groups:
  – Rates of neutropenia and infections (using Cox proportional hazards model)
  – Hospitalization or ED visit from Day 0 to +14 after administration (using logistic regression)
  – CSF administrations from Day 0 to +14 after administration (using multiple regression)
  – Per episode total medical costs from Day 0 to +14 after neutropenia dx (using multiple regression)

Table 1 – Administration characteristics in patients with and without neutropenia

<table>
<thead>
<tr>
<th></th>
<th>No Neutropenia</th>
<th>Neutropenia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Admin 95% CI</td>
<td>Mean Admin 95% CI</td>
</tr>
<tr>
<td>Docetaxel (n=261)</td>
<td>11.19 ± 5.05-3.35</td>
<td>10.74 ± 1.68-1.78</td>
</tr>
<tr>
<td>Paclitaxel (n=1,643)</td>
<td>7.62 ± 5.3-8.1</td>
<td>10.48 ± 2.39-16.62</td>
</tr>
<tr>
<td>Nab-paclitaxel (n=261)</td>
<td>11.99 ± 11.07-12.90</td>
<td>152.3 ± 4.15-31.19</td>
</tr>
</tbody>
</table>

*P<0.05 compared with docetaxel

Conclusions

• Patients receiving nab-paclitaxel spent more time on therapy than those on the other two taxanes.
• Patients receiving nab-paclitaxel had the lowest risk of neutropenia and lowest CSF spend.
• Infection rates were not different between the three taxane groups despite higher CSF spend for those on nab-paclitaxel.
• Costs directly related to neutropenia were lower for patients receiving nab-paclitaxel.

Abstract

Background: the taxanes (docetaxel, Taxotere; and nab-paclitaxel, Abraxane) are used in women with metastatic breast cancer (MBC). Clinical trials indicate that these drugs may differ in their toxicity profiles. Utilizing medical claims data, we evaluated the rates of neutropenia and infectious complications and costs of colon-stimulating factors (CSF) associated with taxane-based chemotherapy in MBC.

Objectives: To determine if differences exist in rates of neutropenia and infections in patients receiving taxane-based chemotherapy for MBC. Additionally, to compare costs associated with CSF use for neutropenia between the taxanes.

Methods: Women with MBC were identified with ICD-9 codes and by prior use of adjuvant chemotherapy regimens. Paid medical claims (source: Ingenix Consulting) from May 1, 2006 to April 30, 2009 were analyzed. Study groups were defined according to the first taxane administered. Demographic and taxane utilization data were collected. We accounted for differing dosing schedules by calculating cumulative taxane exposure (CTE) based on the mean number of doses received and mean days between doses. Taxane-related neutropenia or infection was defined as ICD-9 CM codes for these adverse events within 21 days of taxane administration. Cox proportional hazards models were used to compare rates between taxanes and adjusted for age, comorbidity using the Charlson score, and prior and concurrent chemotherapies. Total CSF costs per patient were adjusted for a variety of variables with Tobit models.

Results:

• Patients receiving nab-paclitaxel had a higher cumulative taxane exposure than the other two taxanes.
• Rates of infection were highest for patients receiving nab-paclitaxel.
• Patients receiving nab-paclitaxel spent more time on therapy than those on the other two taxanes.
• Patients receiving nab-paclitaxel had the lowest risk of neutropenia and lowest CSF spend.
• Infection rates were not different between the three taxane groups despite higher CSF spend for those on nab-paclitaxel.
• Costs directly related to neutropenia were lower for patients receiving nab-paclitaxel.

Table 2 – Neutropenia episodes, costs, hospitalizations, and CSF use

Table 3 – Total CSF costs compared with docetaxel

<table>
<thead>
<tr>
<th></th>
<th>Docetaxel (n=2,599)</th>
<th>Paclitaxel (n=1,643)</th>
<th>Nab-paclitaxel (n=261)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP Episodes</td>
<td>26,809 (1.08)</td>
<td>1,338 (0.81)</td>
<td>161 (0.62)</td>
</tr>
<tr>
<td>NP-Associated Total Costs</td>
<td>$7,890</td>
<td>$6,963*</td>
<td>$6,636</td>
</tr>
<tr>
<td>NP-Specific Costs</td>
<td>$5,193</td>
<td>$4,479*</td>
<td>$4,442*</td>
</tr>
<tr>
<td>Hospitalizations/ Emergency Visits</td>
<td>3.4%</td>
<td>1.6%</td>
<td>1.2%</td>
</tr>
<tr>
<td>CSF use</td>
<td>89.9%</td>
<td>85.9%</td>
<td>85.1%</td>
</tr>
</tbody>
</table>

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— The taxanes vary widely in acquisition cost.
— The value of non-generic products (docetaxel (Taxotere) and nab-paclitaxel (Abraxane)) compared with paclitaxel (Taxol) has been questioned in the treatment of metastatic breast cancer (MBC).
— Previous analysis has demonstrated no difference in total medical cost of care between docetaxel and nab-paclitaxel, but lower for generic paclitaxel. (Am Health Drug Benefits 2010;3:276-84).
— However, patients receiving docetaxel had significantly higher CSF costs compared with nab-paclitaxel and paclitaxel (dilut).