Abandoning Oral Oncolytic Prescriptions at the Pharmacy: Patient and Health Plan Factors Influencing Adherence

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Abstract

Background: Oral oncolytic agents are an increasingly important component of cancer therapy. Adherence with therapy begins with filling the prescription in a timely manner. Little is known of the factors associated with abandonment of oral oncolytics at the initial or subsequent prescription.

Methods: This cross-sectional study analyzed a nationally representative pharmacy claims database and identified 10,508 Medicare and commercial patients initiating oral oncolytic therapy between 2007 and 2009. We calculated the rate of abandonment of the initial claim, where abandonment was defined as the reversal of an adjudicated pharmacy claim without a subsequent paid claim for any oncolytic (oral or IV) within the subsequent 90 days. The likelihood of abandonment was assessed using bivariate and multivariate logistic regression analyses including patient demographic factors, plan type, drug type, cost-sharing and number of other prescriptions.

Results: The abandonment rate of newly initiated oral oncolytic agents was 10.0%. Unadjusted bivariate analyses found that high cost-sharing, larger prescription burden, lower income, and Medicare coverage were associated with a higher abandonment rate (p<0.05). Our logistic regression model found that as both cost-sharing and concurrent prescription use rose, there was a significantly higher likelihood of abandonment. Claims with cost-sharing over $500 were 4 times more likely to be abandoned than claims with cost-sharing of $100 or less (OR=4.46, p<0.001). Medicare patients were more likely to have cost-sharing over $500 than patients with commercial plans (p<0.001). Patients with 5 or more prescriptions in the previous month had 50% higher likelihood to abandon than patients with no prescription burden (OR=1.50, p<0.001).

Conclusions: Abandonment of newly prescribed oral oncolytic therapy is not uncommon, and the likelihood increases for patients enrolled in plans with pharmacy benefit designs that require high cost sharing. Higher prescription burden was also associated with a larger abandonment rate. These factors should be taken into account when considering likely adherence to cancer therapy.
Background

• Cancer patients require timely access to appropriate treatments in order to achieve optimal outcomes.
• Oral oncology medications are becoming more prevalent prior to a range of malignancies. It is estimated that 25-30% of the current cancer drug pipeline is represented by oral agents. However, little is known about patient adherence to these medications. This study assesses the abandonment rate of newly-initiated oral oncology, and specifically whether abandonment is associated with patient and insurance plan characteristics.

Methods

• From a nationally representative pharmacy claims database, we created a dataset with 10,508 patients initiating oral oncology therapy between May 1, 2007, and March 31, 2008. Inclusion criteria were:
  - Claim was paid or reversed, but not rejected, for the following drugs: capcitabine, imatinib, sorafenib, temozolomide, etoricoxib, tamoxifen, and lapatinib.
  - Claim was newly-initiated, defined as a person having no other oncology claims (oral or IV) in the preceding 120 days.
  - Patient had active prescription claims in the dataset at least 120 days before and 90 days after the first fill to ensure eligibility and data capture.
  - Patient insurance coverage was Medicare or commercial plan only.
  - Each patient had complete data for all model variables, this reduced our initial dataset of 20,607 patients to the final sample of 10,508.

We calculated the rate of abandonment, which was defined as the reversal of an abandoned oncology claim without a subsequent paid claim for any oral or IV oncology within the following 90 days.

We assessed the impact of demographic and plan factors influencing the abandonment rate of newly-initiated oral oncology claims. Demographic and plan factors: age, gender, income, geographic region, cost-sharing amount, insurance type, study drug and prescription activity (a measure of burden based upon the number of claim transactions submitted for non-cancer drugs in the previous 30 days).

Descriptive analysis comparing follow-up status of reversed claims with study claims.

Results

Patient characteristics: age (reference = 41-65), gender (reference = Female), insurance type (reference = Commercial), study drug (reference = Capecitabine), and prescription activity.

Study Drug (Reference = Capecitabine)

• 1 Claim 1.02 0.76-1.00 0.280
• 2-4 Claims 1.02 0.80-1.30 0.870
• >4 Claims 1.07 0.90-1.27 0.457

Shaly Drug (Reference = Capcitabine)

• 1 Claim 1.00 1.00-1.00 0.000
• 2-4 Claims 1.21 1.00-1.49 0.047
• >4 Claims 1.50 1.20-1.89 0.001

Study Drug (Reference = Capecitabine)

• 1 Claim 2.09 1.88-2.30 0.000
• 2-4 Claims 2.64 2.31-3.05 0.000
• >4 Claims 3.28 2.80-3.84 0.000

Prescription Activity (Reference = 0 Claims)

• 1 Claim 1.02 0.80-1.30 0.870
• 2-4 Claims 1.21 1.00-1.49 0.047
• >4 Claims 1.50 1.20-1.89 0.001

Shaly Drug (Reference = Capcitabine)

• 1 Claim 2.09 1.88-2.30 0.000
• 2-4 Claims 2.64 2.31-3.05 0.000
• >4 Claims 3.28 2.80-3.84 0.000

Prescription Activity (Reference = 0 Claims)

• 1 Claim 1.02 0.80-1.30 0.870
• 2-4 Claims 1.21 1.00-1.49 0.047
• >4 Claims 1.50 1.20-1.89 0.001

Patient Cost-Sharing Amount (Reference = $0-100)

• $0-100 1.00 0.76-1.26 0.999
• $101-$200 1.07 0.84-1.35 0.584
• $201-$250 1.21 1.00-1.47 0.043
• $251-$350 1.90 1.36-2.63 0.000
• $351-$500 3.28 2.20-4.88 <0.001
• >$500 24.7 15.0-41.0 <0.001

Table 2: Results of Logistic Regression of Likelihood of Abandonment of Newly-Initiated Oral Oncolytic Claims

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
<th>P-Value</th>
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<td>Age*</td>
<td>41-65 1.00</td>
<td>0.80-1.27 0.999</td>
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<td>Study Drug (Reference = Capecitabine)</td>
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<td>Prescription Activity (Reference = 0 Claims)</td>
<td>1 Claim 1.02 0.80-1.30 0.870</td>
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Table 1: Adjudication Status of Newly-Initiated Oral Oncolytic Claims

<table>
<thead>
<tr>
<th>Patient Characteristic</th>
<th>Total N</th>
<th>Total %</th>
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<tbody>
<tr>
<td>Paid or Reversed</td>
<td>10,508 100.0%</td>
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</tr>
<tr>
<td>Abandoned</td>
<td>1,053 (10.0%)</td>
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Figure 1: Outcome of Newly-Initiated Oral Oncolytic Prescriptions

- Based upon an assessment of cost-sharing distributions, a larger proportion of Medicare patients experienced higher cost-sharing than commercially-insured patients, with 46% of Medicare patients having follow-up claims more than $500 versus 11% of commercial patients (p<0.001).
- Results of the logistic regression analysis showed that abandonment increased as cost-sharing and concurrent prescription activity rose, when controlling for all other variables (Table 2).
- Patients with 2-5 prescription claims and patients with more than 5 claims in the previous month had a 26% and 50% higher likelihood of abandoning the oral oncolytic agent (respectively) versus patients without concurrent prescription activity (p<0.05).
- Patients with income lower than $40,000 were 20% more likely to abandon versus patients with incomes more than $75,000 (p=0.005).
- There was no significant association between Medicare or commercial plans or income level and abandonment, when controlling for other factors. Claims submitted in the 2nd, 3rd and 4th quarter of 2008 had higher likelihood of abandonment, as compared to the first quarter of 2008 (45%, 48%, 29%, respectively).

Figure 2: Abandonment Rate of Newly-Initiated Oral Oncolytic Claims by Patient Cost-Sharing Amount

- While we attempted to control for capturing complete pharmacy claims data from a broadsample of the marketplace, we recognize that patients may have accessed pharmacies outside of our sample. To the degree to which we were not able to capture a patient’s follow-up represented by these costs would impact our overall findings.

- We did not have access to data that would identify patients who abandoned a claim but might have followed up with medication provided through a Patient Assistance Program (PAP).

Conclusions

- One-third of patients either abandoned their first prescription for an oral oncology agent or experienced varying degrees of delay in filling a prescription for an oncology.

- The abandonment rate for oral oncology is higher than rates for other chronic disease treatments reported in the literature.

- Patients with Medicare-coverage and lower incomes had higher rates of abandonment of oral oncology.

- Out-of-pocket costs played a significant role with regard to the likelihood that a patient will either abandon or persist with the first fill of an oral oncological agent. One in four patients filling prescriptions with cost-sharing amounts over $500 abandoned the prescription and did not follow up with another oncology medication within 90 days.

- Drug therapy complexity (prescription activity/burden) is also a significant driver of abandonment of oral oncological agents.

- These factors should be taken into account when considering likely adherence to cancer therapy as well as when constructing plan benefit designs. Policymakers may also want to consider the specific implications of higher cost-sharing law led by the Medicare population.

Acknowledgment

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References