Disease Activity and Anti-VEGF Treatment Patterns in a Commercially Insured US Patient Population With Neovascular Age-Related Macular Degeneration

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Key Findings

- Among n=570 eyes presenting with active choroidal neovascularization (aCNV), 19.8% (n=113) transitioned to inactive CNV (iCNV) with a median transition time of 6.6 months
- Patients with aCNV incurred at least $7,000 higher all-cause annual costs than patients with iCNV, largely driven by higher outpatient/anti-VEGF costs

Conclusions

- Rates of anti-VEGF treatment in this population were low compared with clinical trials, which may have contributed to limited transition to inactive/quiescent status
- Suboptimal treatment may lead to worse clinical outcomes (eg, worse visual acuity) and higher downstream costs
- Long-acting anti-VEGF therapy may help reduce treatment burden and preserve visual acuity

Limitation

- A key study limitation was the potential for miscoding in the claims date, which may have contributed to findings or lack of documentation of transitions of care
Background

- Neovascular age-related macular degeneration (nAMD) accounts for ≤20% of AMD cases, but is responsible for ~90% of all cases of severe vision loss from the disease\textsuperscript{1,2}

- Available anti-VEGF therapies require frequent monitoring and regular intravitreal injections for optimal outcomes, resulting in a high patient, caregiver and healthcare system burden\textsuperscript{3,4}

- nAMD treatment patterns and transitions in disease status are not well understood in commercially insured US patients

Objective

- To assess choroidal neovascularization (CNV) activity and anti-VEGF treatment patterns among incident patients with nAMD in US clinical practice

Study Design

• Retrospective analysis of administrative claims data from IQVIA’s PharMetrics® Plus database
  – Incident cohort: ≥50 years of age with commercial insurance, ≥1 claim(s) of ICD-10-CM nAMD diagnosis in the index period (per the figure), and ≥18 months of follow-up
    • Patients were stratified by disease status at diagnosis based on ICD-10-CM codes; ie, active CNV (aCNV), inactive/quiescent CNV (iCNV), inactive scar, and unspecified

![Study Design Diagram]

- **Study period:** Oct 1, 2015 – Aug 31, 2018
- **Index period:** Apr 1, 2016 – Feb 28, 2017

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/01/2015</td>
<td>Pre-index 6-month</td>
</tr>
<tr>
<td>04/01/2016</td>
<td>Incident cohort index period</td>
</tr>
<tr>
<td>02/28/2017</td>
<td>≥18-month follow-up</td>
</tr>
</tbody>
</table>

- **Pre-index 6-month**
  - Baseline characteristics
  - Comorbidities
  - Prior treatments/procedures of interest
  - Prior nAMD diagnosis

- **Index date**
  - Date of the first nAMD diagnosis claim during the study period

- **Follow-up**
  - CNV transitions of interest
  - Annualized healthcare resource utilization
    - nAMD-related outpatient visits
  - Anti-VEGF treatment patterns
  - All patients and by severity

02/28/2017
Outcome Measures

• Kaplan-Meier analyses were used to measure the time to first transition of disease status
  – From aCNV to iCNV
  – From iCNV to aCNV
  – From iCNV to inactive scar
• Mean annual healthcare resource utilization (HRU) is reported per patient
• Anti-VEGF treatment patterns were analyzed in the subgroup of patients who received ≥1 anti-VEGF treatment and had ≥12 months of follow-up after the initial treatment

PharMetrics® Plus Database

• One of the largest claims databases in the US with >150 million unique enrollees across all 50 states
• Representative of the national, commercially insured population in age and gender for people aged ≤65 years
Of 1081 Incident nAMD Patients, Most had aCNV at Baseline and Few had Received Prior anti-VEGF Therapy

<table>
<thead>
<tr>
<th>Parameter</th>
<th>aCNV</th>
<th>iCNV</th>
<th>Inactive scar</th>
<th>Unspecified</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=501 (46.3%)</td>
<td>n=251 (23.2%)</td>
<td>n=124 (11.5%)</td>
<td>n=205 (19.0%)</td>
</tr>
<tr>
<td>Mean (SD) age, y</td>
<td>67.3 (9.8)</td>
<td>66.8 (10.2)</td>
<td>70.7 (11.3)</td>
<td>67.2 (10.9)</td>
</tr>
<tr>
<td>Female, n (%)</td>
<td>280 (55.9)</td>
<td>145 (57.8)</td>
<td>62 (50.0)</td>
<td>111 (54.1)</td>
</tr>
<tr>
<td>Prior anti-VEGF use, a n (%)</td>
<td>13 (2.6)</td>
<td>1 (0.4)</td>
<td>0</td>
<td>8 (3.9)</td>
</tr>
<tr>
<td>Bevacizumab</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ranibizumab</td>
<td>4 (0.8)</td>
<td>0</td>
<td>0</td>
<td>3 (1.5)</td>
</tr>
<tr>
<td>Aflibercept</td>
<td>10 (2.0)</td>
<td>1 (0.4)</td>
<td>0</td>
<td>6 (2.9)</td>
</tr>
<tr>
<td>Prior fall/fracture, n (%)</td>
<td>21 (4.2)</td>
<td>15 (6.0)</td>
<td>10 (8.1)</td>
<td>6 (2.9)</td>
</tr>
<tr>
<td>Mean (SD) CCI score</td>
<td>1.1 (1.5)</td>
<td>1.1 (1.8)</td>
<td>1.3 (1.7)</td>
<td>1.3 (1.6)</td>
</tr>
<tr>
<td>Ocular comorbidities, n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DR</td>
<td>29 (5.8)</td>
<td>7 (2.8)</td>
<td>6 (4.8)</td>
<td>14 (6.8)</td>
</tr>
<tr>
<td>OAG/OHT</td>
<td>28 (5.6)</td>
<td>19 (7.6)</td>
<td>14 (11.3)</td>
<td>15 (7.3)</td>
</tr>
<tr>
<td>OSD</td>
<td>55 (11.0)</td>
<td>11 (4.4)</td>
<td>7 (5.6)</td>
<td>13 (6.3)</td>
</tr>
<tr>
<td>Uveitis</td>
<td>9 (1.8)</td>
<td>2 (0.8)</td>
<td>1 (0.8)</td>
<td>0</td>
</tr>
</tbody>
</table>

a Not mutually exclusive. b During the 6-month pre-index period

CCI, Charlson Comorbidity Index; DR, diabetic retinopathy; OAG, open-angle glaucoma; OHT, ocular hypertension; OSD, ocular surface disease
Most aCNV Eyes Remained Without a Transition Through 18 Months

- The most common baseline status was aCNV (45%, N=570) of 1270 incident eyes diagnosed with nAMD at baseline.
- Among eyes with active CNV at baseline, only 28% (n=160) had any transition and only 20% transitioned to inactive CNV (n=113), the most common first transition.
- The median time in eyes transitioning from active to inactive CNV was ~6.6 months (mean time of ~7.6 months).
Annual nAMD-Related Healthcare Resource Utilization and Costs Were Significantly Higher in Patients With aCNV Than Those With iCNV or Inactive Scar

Patients with active choroidal neovascularization (CNV) incurred at least $7,000 higher all-cause annual costs than patients with inactive CNV, largely driven by higher outpatient/anti-VEGF costs.

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**Data reported per patient.**  
**Across severity subgroups. Statistical analysis included the “Unspecified” disease subgroup.**  
**Total, N=1081 (100%); aCNV, 501 (46.3%); iCNV, n=251 (23.2%); Inactive scar, n=124 (11.5%); Unspecified, n=205 (19.0%). OCT, optical coherence tomography.**
Anti-VEGF Treatment Patterns

• 427 incident patients receiving anti-VEGF treatment were included in this subgroup analysis\textsuperscript{a}

• \(~41\%\) of patients received 1-3 anti-VEGF treatments during follow up
  
  o Overall, \(~62\%\) of patients received \(\leq 6\) injections over the first year

• The overall mean (SD) number of injections during one year of follow up was 5.2 (3.5)

\textsuperscript{a} Patients treated with only 1 anti-VEGF type on initial injection date and during 12-months post-initial injection.  \textsuperscript{b} Including initial injection
Anti-VEGF Treatment Patterns Analysis (continued)

• Overall, the mean (SD) duration of therapy was 6.2 (4.7) months\(^a\)

![Graph showing mean duration of therapy](image_url)

• Overall, 282 (66.0%) patients reported a treatment disruption/break\(^b\)

![Graph showing treatment disruption](image_url)

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\(^a\) Time from diagnosis to the last recorded anti-VEGF injection.

\(^b\) Defined as a >18-week gap in any anti-VEGF therapy.
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Thank You!