Background:
• Despite treatment with ranibizumab and/or bevacizumab, a substantial number of eyes with neovascular age-related macular degeneration (AMD) continue to have persistent sub-foveal or intraretinal fluid on optical coherence tomography. The potential benefit of intravitreal aflibercept for eyes with persistent subfoveal fluid despite multiple treatments with ranibizumab and/or bevacizumab is unknown.1,2,3,4

Purpose:
• To describe visual and anatomic outcomes following three consecutive injections of intravitreal aflibercept in eyes with neovascular age-related macular degeneration with persistent subfoveal fluid despite previous treatments with ranibizumab and/or bevacizumab.

Methods:
• All patients treated with aflibercept for neovascular AMD between November 2011 and June 2012 were screened.
• Only eyes previously treated with at least three consecutive monthly intravitreal injections of either ranibizumab 0.5 mg and/or bevacizumab 1.25 mg with persistent subfoveal fluid and whose last treatment was with ranibizumab were eligible.
• Patients whose last treatment with ranibizumab prior to switching to aflibercept was more than 42 days were excluded.
• Patients received three consecutive injections of aflibercept, with the interval between each aflibercept injection not exceeding 56 days.
• Visual outcomes were measured using best corrected Snellen visual acuities.
• Anatomic outcomes were measured using spectral domain optical coherence tomography images obtained using the Heidelberg Spectralis (Heidelberg Engineering Inc., Vista, CA).
• Anatomic measures analyzed included:
  • Automated central foveal thickness (CFT).
  • Manual CFT (mCFT) measured manually at the fovea.
  • Height and diameter of pigment epithelial detachment (PED) on the foveal scan.

Visual and Anatomic Outcomes of Intravitreal Aflibercept in Eyes with Persistent Subfoveal Fluid Despite Previous Treatments with Ranibizumab and Bevacizumab in Patients with Neovascular Age-Related Macular Degeneration

Results

Visual Acuity (logMAR)

- Baseline: 20/100 (0.54 ± 0.57)
- After 1st IV A: 20/90 (0.50 ± 0.37) (p = 0.03)
- After 2nd IV A: 20/32 (0.37 ± 0.36) (p < 0.001)
- After 3rd IV A: 20/20 (0.35 ± 0.33) (p = 0.04)

Central Foveal Thickness (CFT)

- Baseline: 383 ± 109
- After 1st IV A: 347 ± 191 (p < 0.001)
- After 2nd IV A: 319 ± 159 (p < 0.001)
- After 3rd IV A: 324 ± 164 (p < 0.001)

Manual Central Foveal Thickness (mCFT)

- Baseline: 385 ± 211
- After 1st IV A: 347 ± 191 (p < 0.001)
- After 2nd IV A: 319 ± 159 (p < 0.001)
- After 3rd IV A: 324 ± 164 (p < 0.001)

Pigment Epithelial Detachment – Height

- Baseline: 220 ± 160
- After 1st IV A: 203 ± 158 (p < 0.001)
- After 2nd IV A: 192 ± 144 (p < 0.001)
- After 3rd IV A: 193 ± 144 (p < 0.001)

Pigment Epithelial Detachment – Diameter

- Baseline: 2720 ± 1639
- After 1st IV A: 2669 ± 1696
- After 2nd IV A: 2728 ± 1723
- After 3rd IV A: 2698 ± 1639

Conclusion:
Three consecutive intravitreal injections of aflibercept resulted in a significant improvement in visual and anatomic outcomes in eyes with persistent subfoveal fluid despite previous treatments with ranibizumab and/or bevacizumab.

References:
2. Fung AW, Kumar N, Varea SK, et al. Study to evaluate the role of high-dose ranibizumab 2 mg in the management of neovascular age-related macular degeneration in patients with persistent/subfoveal macular fluid >10 days following treatment with intraocular and VEGF inhibition (the LAST Study). Eye 2012;26:853-860.

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Purpose and Methods

• To describe visual and anatomic outcomes following three consecutive injections of intravitreal aflibercept in eyes with neovascular age-related macular degeneration with persistent subfoveal fluid despite at least three previous monthly consecutive treatments with ranibizumab and/or bevacizumab.

• 57 eyes of 53 patients are analyzed.
  • In all eyes, the last treatment prior to aflibercept was with ranibizumab and the last treatment was within 42 days of initiation of aflibercept.

• Visual outcomes were measured using best corrected Snellen visual acuities.
  • Anatomic outcomes were measured using spectral domain optical coherence tomography images obtained using the Heidelberg Spectralis (Heidelberg Engineering Inc., Vista, CA).

• Anatomic measures analyzed included:
  • Automated central foveal thickness (CFT).
  • Manual CFT (mCFT) measured manually at the fovea.
  • Height and diameter of pigment epithelial detachment (PED) on the foveal scan.
Visual Acuity Results

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>After 1st IVA</th>
<th>p Value (Baseline compared to after 1st IVA)</th>
<th>After 2nd IVA</th>
<th>p Value (Baseline compared to after 2nd IVA)</th>
<th>After 3rd IVA</th>
<th>p Value (Baseline compared to after 3rd IVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Visual Acuity (logMAR)</strong></td>
<td>0.54 ± 0.37 (0.30 – 1.00)</td>
<td>0.50 ± 0.37 (0.18 – 0.70)</td>
<td>0.03</td>
<td>0.47 ± 0.36 (0.18 – 0.70)</td>
<td>0.001</td>
<td>0.48 ± 0.35 (0.18 – 0.70)</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Anatomic Results – Central Foveal Thickness

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>After 1st IVA</th>
<th>p Value (Baseline compared to after 1st IVA)</th>
<th>After 2nd IVA</th>
<th>p Value (Baseline compared to after 2nd IVA)</th>
<th>After 3rd IVA</th>
<th>p Value (Baseline compared to after 3rd IVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Foveal Thickness (automated)</td>
<td>383 ± 109 (312 – 451)</td>
<td>366 ± 103 (292 – 464)</td>
<td>0.04</td>
<td>348 ± 98 (271 – 432)</td>
<td>&lt; 0.001</td>
<td>362 ± 116 (293 – 487)</td>
<td>0.05</td>
</tr>
</tbody>
</table>
Anatomic Results – Pigment Epithelial Detachment

![Box plot showing pigment epithelial detachment heights at baseline and after each IVA procedure.](image_url)

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean ± SD (QR)</th>
<th>After 1st IVA Mean ± SD (QR)</th>
<th>p Value (Baseline compared to after 1st IVA)</th>
<th>After 2nd IVA Mean ± SD (QR)</th>
<th>p Value (Baseline compared to after 2nd IVA)</th>
<th>After 3rd IVA Mean ± SD (QR)</th>
<th>p Value (Baseline compared to after 3rd IVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subfoveal PED height</td>
<td>220 ± 160 (92 – 336)</td>
<td>203 ± 158 (83 – 331)</td>
<td>&lt; 0.001</td>
<td>192 ± 144 (95 – 323)</td>
<td>&lt; 0.001</td>
<td>193 ± 144 (92 – 309)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>
Conclusion

• The group of eyes analyzed in this study is commonly seen in clinical practice.

• The results from our study demonstrate that aflibercept may be a useful treatment option in eyes with persistent fluid despite previous treatments with ranibizumab or bevacizumab.

• Three consecutive intravitreal injections of aflibercept resulted in a significant improvement in visual and anatomic outcomes in eyes with persistent subfoveal fluid despite previous treatments with ranibizumab and/or bevacizumab.