RPE Detachment in AMD: Injection Index May Predict Long Term Visual Outcomes

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Sponsor: Steven Schwartz, MD

53rd Annual Scientific Meeting
Retina Society 2020 VR
Disclosures

I have no financial disclosures to report.
Key points

• Largest PED/AMD cohort and longest follow-up reported to date

• Injection index = # of injections / year

• Statistical analysis of data from this large, retrospective cohort suggests clinically significant findings
  • High cumulative injection index may yield improved visual outcomes at 4 and 5 years in patients with PED/AMD
  • Patients may gain an additional 0.5 ETDRS letters per injection per year
Anti-VEGF: transformative treatment paradigm AMD
Most patients lose vision after a period of relatively regular treatment
The “under-treatment paradox”
Decreas[ed treatment frequency and duration
Fewer injections over time
• Treatment burden
• Non-compliance
• Treatment strategies (treat and extend or prn)
• Socio-economic issues
• Anatomic and functional disease progression
Hypothesis: Injection Index

• A simplified quantification of treatment frequency, injection index (ii), defined as the number of anti-VEGF injections per year from the time of presentation, may provide a useful means of evaluating real world data irrespective of treatment strategy, anti-VEGF agent, or other confounding variables.

• If validated, injection index may become a useful means of discussing and investigating treatment regimens across all diseases treated with VEGF suppression.
RPE Detachment in Neovascular AMD

1. Traditionally thought to have **poor prognosis**

2. Typically excluded from major prospective trials given “poor prognosis”
   - “Difficult to treat,
   - Resistant to anti-VEGF, (persistent fluid)
   - Unsatisfactory response”
   - RPE Tears (0-27%)
   - Atrophy post treatment
   - Disciform scar formation

3. Literature suggests: Best Review: Sarraf:RETINA:November 2018 (38;11)
   - **Under appreciated**: greater than 60% of eyes treated with AMD
   - Post hoc large trials, retrospective studies, prospective trials with low numbers of eyes and follow up 2 years or less
   - No agreement on treatment regimen, agent, ideal anatomic outcomes as they relate to vision
   - “Treatment goals for patients presenting with PED should focus on visual acuity”
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PED /AMD

Retrospective Analysis
256 eyes UCLA / Tel Aviv
5 Year follow-up (1.04-12.74 years)
Vision outcomes by injections/year “Injection Index”
Anti-VEGF agent agnostic
Baseline anatomy, demographics balanced
RPE Tears at baseline excluded
Methods

Inclusion criteria:
• PED with AMD
• >100 micron PED
• 1 year follow-up

Excluded:
• Baseline RPE tears
• PCV, other retinal diseases
• LP or worse vision

Groups:
High ii (≥9 injections)
Low ii (<9 injections)

Analysis:
If patient changed groups, remaining visits were excluded
Methods

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EXAMPLES OF RPE TEARS EXCLUDED AT BASELINE
# Demographics

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<tr>
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<td>High (≥9) (N=130)</td>
<td>Low (&lt;9) (N=126)</td>
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<td>Age (years)</td>
<td>78.3</td>
<td>78.1</td>
<td>0.80</td>
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<td>Gender (Female, %)</td>
<td>59%</td>
<td>64%</td>
<td>0.41</td>
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<tr>
<td>Eye (OD, %)</td>
<td>55%</td>
<td>48%</td>
<td>0.26</td>
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<td>Baseline Vision (Snellen)</td>
<td>20/80</td>
<td>20/73</td>
<td>0.53</td>
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<td>Baseline PED Height (Microns)</td>
<td>327.1</td>
<td>280.6</td>
<td>0.05</td>
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<td>73%</td>
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Vision by Injection Index over 5 Year Follow-up

* Indicates p<0.05

**Injection Index (ii) Group**

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**Follow-up (years)**

0 1 2 3 4 5

**Vision (approx ETDRS letters)**

25 ETDRS letters (>3 lines)

* Indicates p<0.05
Absolute change in vision

Linear Regression
Slope = 0.5

0.5 ETDRS letters per injection per year

For example:
6 more injections / year = 3 letters / year
15 more letters in 5 years

Suggesting 15 more letters in patients treated with 12 injections vs. 6 injections over 5 years.
Example Case

(No indication of pachychoroid disease)
Example Case

(No indication of pachychoroid disease)
Rates of Complications

- Total number of injections = 9824
- Number of endophthalmitis = 1
- Rate = 0.01%
- Number of new RPE tears = 0
Summary

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• Statistical analysis of data from this large, retrospective cohort suggests clinically significant findings
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  • Patients may gain an additional 0.5 ETDRS letters per injection per year
Thank You

• Steven Schwartz, MD
• Adrian Au, MD
• Gilad Rabina, MD
• Noa Kapelushnik, MD
• Shai Cohen, MD
• Dua Masarwa, MD

• Gad Heilweil, MD
• Hamid Hosseini, MD
• Anat Loewenstein, MD
• Bhavya Burugapalli, MD
• Ronald Cantrell
• Shulamit Schwartz, MD