The Impact of Age-Related Macular Degeneration Treatments on Patient Falls and Mobility: A Systematic Review

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Age-Related Macular Degeneration (AMD)

- Costs U.S. healthcare system $50 billion/year
- Linked to poorer overall functioning, earlier admission to long-term care facilities

Interventions for AMD:
- Intraocular anti-vascular endothelial growth factor agents (anti-VEGF)
- Laser therapy
- Photodynamic therapy
- Oral antioxidants

*Major public health problems! Let's take a public health lens:

What is the impact of age-related macular degeneration treatments on patient mobility and falls?

Systematic Review Methods

Inclusion:
- Primary, original studies (clinical trials/observational)

Exclusion:
- Review articles, editorials, commentaries, and articles with abstracts and titles not in English.
- No specified date range

Databases:
- Scopus
- PubMed
- CINAHL

Comprehensive Search Strategy:
- Two reviewers completed the search independently. Inclusion discrepancies adjudicated by a third author.

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<th>Problem</th>
<th>Outcome</th>
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<tr>
<td>Macular-</td>
<td>Fall</td>
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<td>AMD</td>
<td>Mobility</td>
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<td>Vision</td>
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<td>Physical</td>
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Data Extraction:
- Patient demographics, study design, methods, and relevant findings

*Citations furnished upon request

Selection Process

Records identified through database searching (n=3,525)
Records after duplicates removed (n=2,908)
Records screened (n=230)
Full-text articles assessed for eligibility (n=79)
Studies included in qualitative synthesis (n=16)
Records excluded (n=2,578)
Full-text articles excluded (n=63)

Preliminary Findings

Falls/mobility as:
- Primary outcome(s): 2
- Secondary outcome(s): 11
- Listed as anecdotal adverse event: 3

How outcomes assessed:
- Quality of life questionnaires (5)
- Physical functioning questionnaires (4)
- In-person tests (3)
- Falls reporting (2)

Highlights from Three Sample Studies:
- Treatment improvement in mobility/fall rate:
  In RCT of vitamin A vs. placebo in AMD patients: After 30 days, the vitamin A group had a 5 point improvement in mobility/fall rate: (n= 2,578) compared to placebo in AMD patients (P = 0.0224)

No treatment improvement in mobility/fall rate:
- No clinically significant difference in mobility outcomes on quality of life scale between bevacizumab and ranibizumab and continuous vs. discontinuous treatment regimens (p = 0.74 & p = 0.73) (anti-VEGF injections)

Mobility not significantly associated with the subjective gain of vision clarity by photodynamic therapy after correction for confounders (p=0.53)

Discussion

- Heterogeneous study designs, methods, and findings difficult to compare studies
- Need standardized measurement tool(s) for assessing mobility and patient falls
- Ophthalmology needs a broader focus of outcomes
  - Patient-centered vs. organ-centered
  - Public health lens

Future Directions

- Search grey geriatrics, literature and final paper references
- GRADE assessment of study quality
- Synthesize findings
- Publish!