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)

FALLS

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

AMD

- Leading cause of blindness in developed countries
- Aging population: ↑ life expectancy = ↑ prevalence of geriatric eye conditions

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:

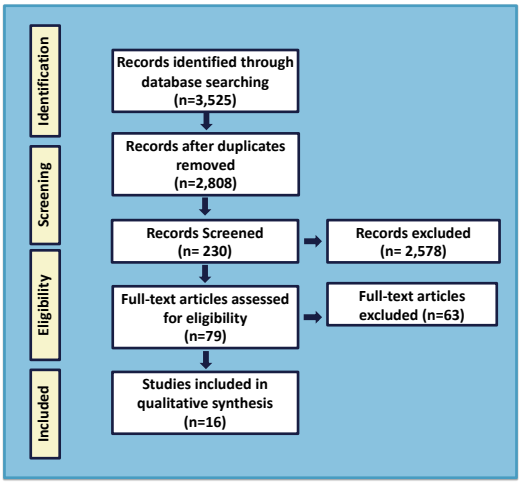
Scopus PubMed.gov CINAHL Cochrane

Comprehensive Search Strategy:

- Two reviewers completed the search independently. Inclusion discrepancies adjudicated by a third author.

Problem	Intervention	Outcome of interest
36 variations	43 variations	21 variations

Selection Process



Problem	Outcome
Macula-	Fall
Maculo-	Mobility
AMD	Gait
ARMD	Stability
Neovascularization	Hip fracture
	Balance
	Injury
	Physical

Data Extraction:

- Patient demographics, study design, methods, and relevant findings

***Citations furnished upon request**

Preliminary Findings

Falls/mobility as..

- Primary outcome(s)- **2**
- Secondary outcome(s)- **11**
- Listed as anecdotal adverse event- **3**

Types of studies:

- Randomized control trials- **8**
- Non-randomized control trials-**2**
- Cross-sectional studies- **4**
- Prospective case series- **1**
- Prospective cohort- **1**

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:

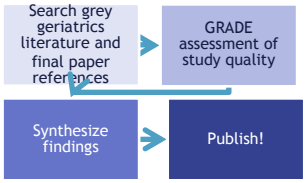
In RCT of **vitamin A** vs. placebo in AMD patients- After 30 days, the vitamin A group had a ↑ **score by 5 points on the mobility subscale** compared to placebo when controlling for confounders (P = 0.0224)

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