INPLASY

Optimizing Lipid-Lowering Strategies: Balancing Risks and Benefits of Statin Therapy in Individuals Over 70 – A Scoping Review

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ADMINISTRATIVE INFORMATION

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 March 2025 and was last updated on 17 March 2025.

INTRODUCTION

Review question / Objective What are the risks and benefits of maintaining statin therapy as a lipid-lowering strategy in adults over 70 years old?

Rationale Cardiovascular disease (CVD) remains a leading cause of morbidity and mortality worldwide, particularly among the aging population. Statins, as HMG-CoA reductase inhibitors, are the cornerstone of lipid-lowering therapy and have demonstrated efficacy in both primary and secondary prevention of atherosclerotic cardiovascular disease (ASCVD). Despite their proven benefits, the use of statins in individuals over 70 remains a subject of debate due to concerns regarding safety, efficacy, and the risk-benefit balance in this specific age group.

While guidelines from organizations such as the American Heart Association (AHA) and the U.S. Preventive Services Task Force (USPSTF) recommend statin therapy for primary prevention up to the age of 70, evidence for its continued use beyond this threshold is limited. Clinical trials often exclude older adults, leading to a gap in knowledge regarding the real-world applicability of statin therapy in this population. Observational studies suggest a potential reduction in all-cause and cardiovascular mortality among older adults receiving statins, but the risk of adverse effects, including myopathies, metabolic disturbances, and cognitive impairment, raises concerns about their routine prescription.

Given the increasing life expectancy and the growing burden of cardiovascular disease in the elderly, optimizing lipid-lowering strategies is essential to improving health outcomes. This scoping review aims to synthesize the available evidence on the risks and benefits of statin therapy in individuals over 70, providing a comprehensive overview to inform clinical decision-making. By evaluating the current literature, we seek to address the existing knowledge gaps and contribute to a more individualized approach to lipid management in the aging population.

Condition being studied Atherosclerotic cardiovascular disease (ASCVD) is a leading cause of morbidity and mortality, particularly in older adults. It results from the progressive accumulation of lipid-rich plaques in the arterial walls, leading to reduced blood flow, ischemia, and an increased risk of myocardial infarction and stroke. Statins, as lipid-lowering agents, play a crucial role in ASCVD prevention; however, their use in individuals over 70 remains debated due to concerns about efficacy, safety, and potential adverse effects. Understanding the impact of statin therapy in this age group is essential for optimizing cardiovascular risk management and improving clinical outcomes.

METHODS

Search strategy ("Aged"[MeSH]) AND ("Hydroxymethylglutaryl-CoA Reductase Inhibitors"[MeSH] AND ("Hypolipidemic Agents"[MeSH] OR "Lipid Regulating Agents"[MeSH] OR "no statin" OR "without statins" OR "alternative therapy") AND ("Lipids"[MeSH] OR "Risk Assessment"[MeSH] OR "Treatment Outcome"[MeSH] OR "Risk Reduction Behavior"[MeSH]). Database: PubMed, Embase, Scopus, Bireme and google scholar.

Participant or population Individuals over 70 years old without a history of cardiovascular disease or with associated risk factors.

Intervention Statin treatment in dyslipidemia.

Comparator Patients with dyslipidemia not managed with statins.

Study designs to be included Retrospective cohorts, cross-sectional case-control studies, randomized controlled trials, systematic reviews, and case reports.

Eligibility criteria The inclusion criteria considered observational studies (retrospective cohorts, cross-sectional case-control studies), randomized controlled trials, systematic reviews, and case reports that evaluated statin use in individuals over 70 years old without a history of cardiovascular disease or with associated risk factors.

Information sources This scoping review will gather data from multiple sources to ensure comprehensive coverage of the topic. Electronic databases, including PubMed, Embase, Scopus, and Bireme (BVS), will be systematically searched using predefined keywords and MeSH terms. Additionally, trial registries such as ClinicalTrials.gov and the International Clinical Trials Registry Platform (ICTRP) will be reviewed for ongoing or unpublished studies. Grey literature, including conference proceedings and institutional reports, will be considered to minimize publication bias.

Main outcome(s) Primary cardiovascular prevention and safety (lipids, risk assessment, treatment outcome, risk reduction behavior).

Additional outcome(s) No.

Quality assessment / Risk of bias analysis Does not apply.

Strategy of data synthesis Data synthesis will be conducted through a narrative approach, summarizing key findings from the included studies. Descriptive statistics will be used to present the frequency and distribution of relevant variables. If applicable, thematic analysis will be performed to identify patterns across qualitative data. Quantitative results will be synthesized through tabular and graphical representations to facilitate comparison.

Subgroup analysis By type of statin.

Sensitivity analysis It is not going to be done.

Language restriction English.

Country(ies) involved Colombia.

Keywords Cardiovascular Diseases; Aging; Primary Prevention; Drug-Related Side Effects and Adverse Reactions; Dyslipidemias; Hypolipidemic Agents; Atherosclerosis.

Contributions of each author

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