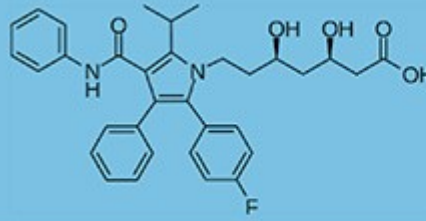


STATIN

NEWSLETTER



A CURATED WEEKLY OVERVIEW OF ALL STATIN PUBLICATIONS

Update week 01 & 02 - 2023

Dr. Peter Lansberg is a Dutch lipidologist, educator and innovator. He has been instrumental in setting up The Dutch National Lipid Clinic Network, the Dutch Lipid Clinic Criteria for Familial Hypercholesterolemia (FH), and the Dutch National FH screening program

The Statin Newsletter will keep you up-to-date with all recent statin publications. Based on a curated approach to select relevant articles.

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Key Publications

1. **Effects of statin in patients that had Carotid Artery stenting procedure.**
2. **New guidelines for CAC scoring**
3. **Statins and cancer?**
4. **Meta-analysis evaluating the effects of statins in NAFLD.**
5. **Are statins anti-depressant? An updated review**

Evaluating the effects of high dose atorvastatin in CAS patients

The aim of this single-center pilot randomized controlled trial was to investigate the effect of high-dose atorvastatin on preventing ischemic brain damage after carotid artery stenting (CAS). A total of 130 patients with CAS were randomly assigned to receive either a high-dose of 80 mg/day atorvastatin or a standard-dose of 20 mg/day atorvastatin for 3 days before and 3 days after planned CAS. The primary endpoint was the cumulative incidence of silent new ischemic cerebral lesions (sNICL) on post-CAS cerebral diffusion-weighted magnetic resonance imaging (DW-MRI), transient ischemic attack (TIA), or ischemic stroke within 30 days after CAS. The results showed that high-dose atorvastatin did not reduce the rate of periprocedural ischemic brain damage among patients with CAS. However, high-dose statins reduced the incidence of sNICL after CAS in patients with symptomatic carotid stenosis. The study concluded that while the PICAS pilot study did not support the routine use of high-dose atorvastatin in unselected CAS patients, larger multiple-center randomized clinical trials are needed to investigate whether perioperative high-dose atorvastatin has efficacy in preventing the onset of ischemic events after CAS. The study has some limitations, including being a single-center study and not considering other baseline data such as carotid artery tortuosity, other intracranial and extracranial artery stenosis, balloon dilatation time and pressure, and DW-MRI reexamination time in the two groups.

Additionally, the study was designed as a pilot study, which may have limited the power of the relevant study endpoints. A subsequent larger multicenter study is needed to investigate the efficacy of high-dose atorvastatin in preventing ischemic events after CAS.

Wang H, Wang J, Qi P *et al.* **A single-center pilot randomized controlled trial of atorvastatin loading for preventing ischemic brain damage after carotid artery stenting.** Frontiers in aging neuroscience 2022; 14:1066316. <http://www.ncbi.nlm.nih.gov/pubmed/?term=36620770>

Review of global Coronary Artery Calcium, Scoring Guidelines

The review article discusses global guidelines for the assessment of coronary artery calcium (CAC) in atherosclerotic cardiovascular disease risk assessment for use in both clinical settings and preventive therapy. The authors compare the similarities and differences in recommendations presented by different cardiovascular societies across the world. The review includes guidelines from North America, Europe, Australia and New Zealand, China, and Japan. The guidelines emphasize the importance of CAC in primary and secondary prevention of atherosclerotic cardiovascular disease and promote a dynamic clinician-patient relationship for individualized disease management and pharmacotherapy treatment.

The guidelines all recommend statins for primary prevention and CAC as a reasonable risk adjudicator. Despite some differences in precise CAC score intervals, risk cut points, treatment thresholds, and stratifiers of specific patient subgroups, the international guidelines employ more similarities than differences from both a clinical and functional perspective. The authors highlight the importance of understanding these similarities and differences in international guidelines to help physicians correctly determine personalized statin therapy and subsequent management.

The review underscores the need to unify universal ASCVD risk assessment and establish global solutions for CPGs on CAC scoring. The authors note that additional research and rigorous data are vital for younger age groups and the female population. By summarizing the framework behind global guidelines of CAC in ASCVD risk assessment, this analysis allows for applications in both the clinical setting and preventive therapy. Helping physicians understand universal differences and similarities is key to refine risk detection, focus preventive strategies of care, and empower the most fitting choices in CVD prevention and management.

Golub IS, Termeie OG, Kristo S *et al.* **Major Global Coronary Artery Calcium Guidelines.** JACC. Cardiovascular imaging 2023; 16:98-117. <http://www.ncbi.nlm.nih.gov/pubmed/?term=36599573>

Statins and cancer

The relationship between statin usage and cancer prevention has been studied by clinical researchers but remains inconsistent. Statins are commonly used drugs that lower cholesterol levels by inhibiting HMG CoA reductase. A recent study by Maeda-Minami and colleagues found that statin use may reduce cancer risk, but the study design and results suggest that it is associated with a reduction in cancer risk rather than a direct causative factor. The study included over 50,000 patients with hyperlipidemia in Japan, and the analysis found that digestive organ cancer risk was significantly lower in statin users, but only for non-smokers. The authors suggest that healthy patients should not be given statins to reduce cancer risk and that large clinical trials are needed to prove the effectiveness of statins in preventing cancer. Instead, statins may be more promising as an adjunctive cancer treatment to delay cancer progression, as studies have shown statin usage being associated with cancer progression and survival. Ultimately, better biomarkers are needed to identify patients who will benefit the most from statin usage, and which cancers are most sensitive to statins. The results of this study suggest that there are modest benefits of statin usage for cancer prevention, Practical implementation as well as investment of resources and funding are uncela. Statins are not unique for having potential cancer benefits, there are other proven medications for cancer prevention that are not widely used.

Das S, Freedland SJ. **Statins and Cancer Prevention-Association Does Not Mean Causation.** Cancer prevention research (Philadelphia, Pa.) 2023; 16:1-3. <http://www.ncbi.nlm.nih.gov/pubmed/?term=36597731>

Meta analysis reviewing the benefits and harms of statins in NAFLD

Nonalcoholic fatty liver disease (NAFLD) has become a major health concern due to changes in dietary structure and lifestyle, and it is now the most common chronic liver disease worldwide. Statins, which are commonly used to lower cholesterol levels, have been suggested as a potential treatment for NAFLD and its more severe form, nonalcoholic steatohepatitis (NASH), but their efficacy and safety in this context have been unclear. A systematic review and meta-analysis of four randomized controlled studies involving 169 participants with NAFLD and NASH found that statins significantly lowered serum levels of aspartate transaminase, alanine aminotransferase (ALT), triglycerides, and cholesterol compared to control groups. However, the effect of statins on liver inflammation and fibrosis was less clear, and the studies had limitations, such as the small sample size and heterogeneity of the trials. The analysis also showed that the varied effects of statins on inflammation and fibrosis in patients with and without hyperlipidemia may be explained by multiple underlying processes, such as statins' ability to improve insulin resistance and islet cell function. Further research, including larger studies and randomized placebo-controlled trials with imaging and tissue data, is needed to establish stronger evidence of statins' efficacy and safety in treating NAFLD and NASH. While statins can improve liver biochemical parameters and reduce lipid levels, potential adverse reactions must also be considered in clinical treatment. In conclusion, the study suggests that statins may be a potential treatment for NAFLD and NASH, but more research is needed to confirm their efficacy and safety

Dai W, Xu B, Li P, Weng J. **Statins for the Treatment of Nonalcoholic Fatty Liver Disease and Nonalcoholic Steatohepatitis: A Systematic Review and Meta-Analysis.** *American journal of therapeutics* 2023; 30:e17-e25. <http://www.ncbi.nlm.nih.gov/pubmed/?term=36608070>

The anti-depressant effects of statins, an updated review

this article provides an updated review on the anti-depressant effects of statins in patients with major depression, post-myocardial infarction. The study aimed to understand the mechanisms, benefits, risks, and potential drug interactions of statins in treating depression. The research showed a positive correlation between the reduction of depressive symptoms with statin therapy as an adjunctive treatment with conventional anti-depressants. Statins have properties such as antioxidant, anti-inflammatory, and lipid-lowering effects, which can protect against cardiovascular disease and other neuropsychiatric disorders. Atorvastatin has neuroprotective and anti-depressant effects, while lipophilic statins like simvastatin are more effective at treating depressive symptoms. The anti-depressant effects of statins are dependent on serotonergic system modulation and increasing central BDNF activity. Statins are generally safe and have no serious drug-drug interactions with anti-depressants. The article suggests that statins are useful as add-on therapy in patients with co-morbid coronary artery disease, diabetes, and hypertension, and not as monotherapy. Large-scale observational studies and further post-marketing surveillance are encouraged to improve knowledge of the effectiveness of statins in depression treatment. The article concludes with a multi-pronged treatment strategy for patients with depression and cardiovascular disease, which includes statins and other cardiovascular drugs such as angiotensin-converting enzyme inhibitors, aspirin, and metformin.

Gutlapalli SD, Farhat H, Irfan H *et al.* The Anti-Depressant Effects of Statins in Patients With Major Depression Post-Myocardial Infarction: An Updated Review 2022. *Cureus* 2022; 14:e32323. <http://www.ncbi.nlm.nih.gov/pubmed/?term=36628002>

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