



Curated by Peter Lansberg,
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The IAS statin literature update will keep you up-to-date with all recent statin publications, using a curated approach to select relevant articles.

Key publications

Rosuvastatin improves coronary flow reserve in hypertensive patients

In this 12-month trial, 95 Korean hypertensive patients were randomized to rosuvastatin 10 mg or placebo; all patients were receiving antihypertensive medication as well as recommendations to improve their lifestyle. Coronary flow reserve (CFR) was estimated using Doppler echocardiography to measure flow velocity in the distal anterior descending artery. CFR was calculated as the ratio of hyperaemic to basal averaged peak diastolic flow velocity. The primary endpoint, change of CFR comparing baseline values with the estimates after 12 months follow-up. Plasma LDL-c concentrations were lower in the

rosuvastatin arm, from 157 ± 23 to 84 ± 16 mg/dL ($P < 0.001$), no significant changes between the two groups were noted for hsCRP, HDL-c, and blood pressure. CFR parameters improved significantly in patients that received rosuvastatin. The CFR rosuvastatin arm increased from 3.03 ± 0.44 to 3.25 ± 0.49 ($p < 0.001$) vs. 3.15 ± 0.54 to 3.17 ± 0.56 in the control group ($p = 0.65$). The primary endpoint of change in CFR was significantly different between the rosuvastatin group and the control group; 0.216 ± 0.279 vs. 0.015 ± 0.217 ($p < 0.001$). Based on these findings, the authors concluded that rosuvastatin significantly improved CFR in Korean hypertensive patients.

Yang Y, Hwang E, Lee SA *et al.* Effect of Rosuvastatin on Coronary Flow Reserve in Hypertensive Patients at Cardiovascular Risk. *Journal of cardiovascular imaging* 2021. <http://www.ncbi.nlm.nih.gov/pubmed/?term=34080332>

Are Statins able to prevent COVID-19 complications – not quite sure yet

In this JAMA editorial Rita Rubin share her insights on the role of statins in COVID-19 patients. Studies that have collected data on statins are predominantly retrospective observational reports with contradicting findings ranging for improved survival to neutral and even worse outcomes in statin taking patients. The simple take home message is don't start don't stop! Or patients that need to take statins because of increased ASCVD risk should continue taking them but we should refrain from taking statins only to improve the odds of avoiding COVID-19 triggered complications. Randomized trials are ongoing and their findings will provide better evidence for the potential role of statins in reducing risk for complications, ICU admissions and mortality.

Rubin R. Could Statins Do More Than Lower Cholesterol in Patients With COVID-19? *Jama* 2021; 325:2424-2425. <http://www.ncbi.nlm.nih.gov/pubmed/?term=34081086>

How to Improve lipid modification goals a systematic review

The vital role of statins to prevent ASCVD complications is common medical knowledge that has been substantiated repeatedly with a large number of well-designed randomized placebo-controlled studies, numerous meta-analyses of those studies, and distilled in specialized societal, national, international recommendations and guidelines globally. Despite these relentless efforts, data from real-world registries reflects that a vast number of patients are not treated according to these standards. This systematic review addresses various strategies that can improve lipid management and ensure that patients are treated according to guidelines. Using statins with or without ezetimibe is considered the standard approach to optimally lower LDL-c to reduce ASCVD risk. Additional strategies using non-statin drugs, such as new formulations to reduce or neutralize PCSK9, are suggested as alternatives for patients that are unable to tolerate high dose – high-intensity statins or

whose LDL-c remains too high despite taking statins combined with ezetimibe. Using non-invasive imaging to visualize the atherosclerotic burden can help when discussing treatment options with patients. One of the greatest challenges health care providers face is dealing with the nocebo effect; this firmly established notion that statins are drugs that cause more harm than benefits remains a formidable barrier for patients to continue using their prescribed statins in the correct dosage. The suggestions of this review are important to address; prescribing a statin is perhaps a simple action that takes seconds to execute, however ensuring that patients heed your advice and use their lifesaving medication in the correct dose for many years if not for the rest of their lives takes understanding and efforts. Reynolds TM, Pottle A, Quoraishi SH. Current Perspectives on the Attainment of Lipid Modification Goals Relating to the Use of Statins and Ezetimibe for the Prevention of Cardiovascular Disease in the United Kingdom. Vasc Health Risk Manag 2021; 17:227-237. <http://www.ncbi.nlm.nih.gov/pubmed/?term=34054297>

First report of the Russian FH-ESSE-RF registry

Familial hypercholesterolemia was a diagnosis with a somber prognosis before the development of effective cholesterol-lowering medications. Statins combined with ezetimibe or PCSK9ab effectively transformed the outcomes of, especially young, FH patients. Initiatives to screen for families affected with this inheritable disease have surfaced in many countries, support by initiatives of global societies such as the International Atherosclerosis Society (ScreenProFH) and the European Atherosclerosis Society (FHSC). This report from the FH-ESSE-RF Study estimates FH prevalence, characteristics, and management of the 11 combined different regions of the Russian Federation. In total, 18 142 patients were evaluated for the diagnosis of FH, using the Dutch Lipid Clinic Network Criteria and genetic testing. This resulted in a estimated prevalence of (definite + probable FH) 0.58% (1:173 patients). Of those, 16.1% had tendon xanthoma's; 36.2% had mutations in the three putative genes (LDLr, Apo B, and PCSK9); ASCVD manifestations were observed in 45.6%, and 63% were treated with statins. Only one patient received a PCSK9ab, and no one used ezetimibe. As suggested by the EASC/EAS 2019 guidelines, treatment goals were reached by 3% of all FH patients. The findings of this important initiative underline that efforts directed at finding, diagnosing FH patients, and treatment intensification are urgently warranted. Prolonged inertia can have fatal consequences for Russian FH patients in the years ahead.

Meshkov AN, Ershova AI, Kiseleva AV *et al.* The Prevalence of Heterozygous Familial Hypercholesterolemia in Selected Regions of the Russian Federation: The FH-ESSE-RF Study. Journal of personalized medicine 2021; 11. <http://www.ncbi.nlm.nih.gov/pubmed/?term=34074024>

Can we prevent serious complications in naSAH patient using statins?

Using statins in patients that have suffered from or at risk of a cerebral bleed remains an ongoing debate, fuelled by the lack of evidence of RCTs. To guide physicians in their decisions if statins could be of use in patients that have suffered a non-aneurysmal subarachnoid hemorrhage (naSAH), this article provides a systematic review of experimental studies, including animal research data, as well as clinical data of naSAH patients collected in a single institute between 1999 and 2018. Recorded endpoints incorporated the occurrence of cerebral vasospasm (CVS), delayed infarction (DI), delayed cerebral ischemia (DCI), and clinical outcome. The 13 included experimental animal studies differed significantly in drug administration, evaluation methods, and neurological tests. Patients that participated in the Back to Bedside project contributed 293 naSAH patients, of which 51 were treated with simvastatin. Overall statin use was associated with improved outcomes, OR: 3 (P<0.05); CVS OR: 3.7 (P<0.01); IS OR: 2.6 (P<0.05), and DIC OR: 3 (P<0.05). A sub-analysis comparing patients that used statins pre-SAH (N=31) to patients that used statins post-SAH (N=20) showed only benefits in the latter group (OR: 0.04 (P<0.05)). The main predictors of favourable clinical outcomes were female gender (55%) OR: 4.9 (P,0.001); Hunt & Hess III at admission OR: 4 (p < 0.002); no anticoagulant-therapy OR: 0.16 (p < 0.0001), and statin-treatment OR: 24.2 (p < 0.0001). the authors concluded that patients who suffered a naSAH could potentially improve clinical outcomes when using a statin based on their evaluation.

Kashefiolas S, Wagner M, Brawanski N *et al.* Statins Improve Clinical Outcome After Non-aneurysmal Subarachnoid Hemorrhage: A Translational Insight From a Systematic Review of Experimental Studies. *Frontiers in neurology* 2021; 12:620096.

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