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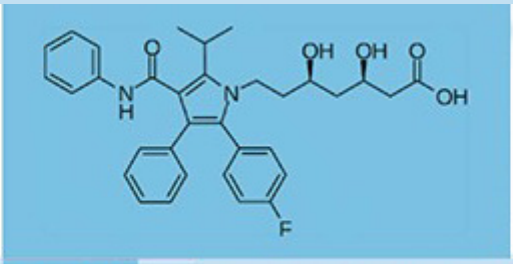
IAS STATIN NEWSLETTER



INTERNATIONAL ATHEROSCLEROSIS SOCIETY

A CURATED WEEKLY UPDATE OF ALL STATIN PUBLICATIONS

Update - Week 01 & 02, 2022

Curated by Peter Lansberg, a Dutch lipidologist and educator, and reviewed by prof. Philip Barter, Past President of the International Atherosclerosis Society.

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

Paradoxical relationship between HbA1c and statins triggered NODM

For this retrospective analysis, to determine if baseline HbA1C is an independent risk factor for statin-induced new-onset diabetes mellitus (NODM), data collected in the Veterans Healthcare Administration was queried. Between January 2011 and December 2018, 152 358 patients were included and followed for an average period of 6.89 (SD 2.26) years. In non-statin users and 3.85 (SD 2.29) in statin users. Baseline HbA1c values were stratified into three categories: ≤5.6%, 5.7%–5.9%, and 6.0%–6.4%. The incidence of statin-induced NODM was 224.5 extra cases per 100 000 patients over a 4-year follow-up. This largest to date analysis of the diabetogenic risk of statins vs. patients not using statins, closely matched for baseline characteristics, showed an unexpected reverse association between HbA1C and NODM. Overall, the statin users HRs were 2.08 (1.85-2.35), 1.57 (1.40-1.75) and 1.03 (0.93-1.15) for HbA1c groups of ≤5.6%, 5.7%– 5.9% and 6.0%–6.4%, respectively (p<0.0001). There was no significant difference in diabetogenic risk among different statin groups. The hypothesis for this finding is that an HbA1C between 6.0% and 6.4% is by itself associated with an increased risk of NODM, eradicating additional risk posed by statins. The authors recommended that the A1c value at the time of a patient-provider shared decision-making session should be included to discuss diabetogenic risks of statin therapy.
Ziganshina AP, Gemoets DE, Kaminsky LS, Gosmanov AR. Baseline hemoglobin A1c and risk of statin-induced diabetes: results of Veterans Affairs Database analysis. BMJ open diabetes research & care 2022; 10. http://www.ncbi.nlm.nih.gov/pubmed/?term=34987054

Improving management of post-ACS patients by a simple audit strategy

Retrospective studies on medical management of post ACS patients have repeatedly shown the gap between guideline recommend medication and dosages and real-world

implementation of these recommendations. In this pharmacist-based intervention, discharge prescriptions were audited by hospital pharmacists. The medications monitored were statins, dual antiplatelet therapy (DAPT), beta-blockers, and angiotensin-converting enzyme inhibitors (ACE-I)/angiotensin receptor blockers (ARB). Every month, a feedback report was presented to the cardiologist managing the discharged patients. The trends in the adherence to guideline-recommended medication were analyzed over 12 months. A total of 1072 patients participated in this prospective study. In the first month, omissions of DAPT, statin, ACE-I/ARB, and beta-blockers were observed in 1%, 0%, 14%, and 11%, respectively, which reduced to nil by the end of the 11th month of the audit. This remained unchanged until the end of the 12th month. The observed findings illustrate how a simple and effective strategy ensures that guideline-recommended medications are appropriately prescribed in post- ACS patients. The simple strategy can be easily implemented in both developed economies as in countries and hospitals with limited resources.

George NE, Shukkoor AA, Joseph N *et al.* Implementation of clinical audit to improve adherence to guideline-recommended therapy in acute coronary syndrome. The Egyptian heart journal : (EHJ) : official bulletin of the Egyptian Society of Cardiology 2022; 74:4. http://www.ncbi.nlm.nih.gov/pubmed/?term=35020077

Can statins protect PAD patients from AKI

Patients with symptomatic peripheral artery disease (PAD) are at risk for acute kidney injury (AKI). This is partly due to advanced atherosclerosis and the nephrotoxic contrast medium used for angiographic imaging and interventions. A retrospective analysis of hospitalized PAD patients was conducted to explore the protective effects of statins on the incidence of AKI in patients with PAD. Data collected in the endovascular treatment database of a single hospital was used, and a total of 295 PAD patients that underwent an angiography or intervention were included for this analysis. Patients without statins (N=157) were compared to patients that used statins for at least one month prior to admission (N=138). Patients that used statins were more likely to have DM, were younger, had a higher BMI, and a lower LDL-c. The dose of contrast medium administered, ACEi/ARB's use, smoking habits, and blood pressure were similar. The incidence of AKI was significantly reduced in the statin user compared to the controls, 5% vs. 16% ($P<0.05$). The findings of this retrospective analysis show that the use of statins were associated with a reduced risk of AKI; due to the observational design of this analysis, a prospective and randomized study is warranted to corroborate these findings.

Kanai D, Fujii H, Nakai K *et al.* Statin Use Influence on the Occurrence of Acute Kidney Injury in Patients with Peripheral Arterial Disease. J Atheroscler Thromb 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35013022

Overcoming prescription inertia in secondary prevention

Medication used by patients admitted for an ACS is frequently continued without adjusting the dosage or adding a guideline-recommended medication that was not used prior to the hospitalization. In this retrospective analysis of a single Hong Kong tertiary referral hospital, discharge medication of secondary prevention therapies (aspirin, beta-blockers, statins, and ACEI/ ARBs) were evaluated for 12-month survival. Prescription rates of aspirin, beta-blocker, statin, and ACEI/ARBs on discharge were 94.8%, 64.5%, 83.5%, and 61.4%, respectively. Prior use of each drug class was an independent predictor of the same class mediation at discharge; OR: 4.8 (1.9–12.3, $P < 0.01$); beta-blocker, OR: 2.5 (1.8–3.4, $P < 0.01$); statin, OR: 8.3 (0.4–15.7, $P < 0.01$), and ACEI/ARBs OR: 2.9 (2.0–4.3, $P < 0.01$). Passive continuation of medication used was associated with an increased 1-year mortality compared to active initiation in treatment naïve patients, aspirin (13.7% vs. 5.7%), beta-blockers (12.9% vs. 5.6%), and statins (11.0% vs. 4.6%); all $P < 0.01$. Overall the use of medication for secondary prevention was suboptimal. The continuation of sub-therapeutic dosages of secondary prevention medication was a common finding in patients discharged after an ASCVD event and warrants strategies to ensure that these very high ASCVD risk patients are adequately managed.

Xurui Huang N, Sanderson JE, Fang F *et al.* Passive Prescription of Secondary Prevention Medical Therapy during Index Hospitalization for Acute Myocardial Infarction Is Prevalent and Associated with Adverse Clinical Outcomes. J Healthc Eng 2021; 2021:9543912.

http://www.ncbi.nlm.nih.gov/pubmed/?term=34976331

Estimating sd-LDL; the TG/LDL-c ratio comes very close!

In patients with type 2 diabetes (DM2), LDL-c is not that much higher than non-diabetic patients. The type and pro-atherogenic qualities of LDL particles in diabetics are different and translate into a much higher ASCVD risk. Small dense LDL (sd-LDL) is considered a relevant risk marker in diabetes or metabolic syndrome/ insulin resistance patients. Measuring the plasma concentrations of sdLDL is possible but at increased costs and not always available in many hospitals. This analytical study evaluated the relationship between LDL size – using LDL- migration index (LDL-MI) based on electrophoresis polyacrylamide gel and simple plasma lipid concentrations. A cut-off value of ≥0.400 was used to determine increased LDL size. Based on a C-statistics model, different fractions and ratios (TGs, non–HDL-C, TG/LDL-C ratio, TG/HDL-C ratio, and non–HDL-C/HDL-C) were evaluated. The TG/LDL-c ratio reached an AUC of 0.945 (0.884-1.00) in patients not treated with statins. The optimal cut-off point for TG/LDL-C ratio for increased LDL-MI was 1.1 (molar ratio) regardless of statin treatment. The sensitivity and specificity of the TG/LDL-C ratio (90.0 and 93.9%, respectively) were higher than those of non–HDL-C (56.7 and 78.8%, respectively) in patients without statins. The TG/LDL-c ratio may provide a simple clinical tool for predicting increased sd-LDL and could help reduce residual risk in diabetic or insulin-resistant patients.

Ouchi G, Komiya I, Taira S *et al.* Triglyceride/low-density-lipoprotein cholesterol ratio is the most valuable predictor for increased small, dense LDL in type 2 diabetes patients. Lipids Health Dis 2022; 21:4. http://www.ncbi.nlm.nih.gov/pubmed/?term=34996463

Relevant publications

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3. **Atorvastatin versus placebo in patients with covid-19 in intensive care: randomized controlled trial. Bmj 2022; 376:e068407.** http://www.ncbi.nlm.nih.gov/pubmed/?term=34996756
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