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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

LDL-c best lipid predictor for MACE in Chinese post primary PCI patients

This retrospective analysis was used to determine which lipid parameter would be best suited to estimate MACE risk in Chinese post-primary PCI patients. Data were collected in a single Sichuan provincial hospital between January 2016 and December 2017. In 445 participants, LDL-c was compared to several non-LDL-c parameters, e.g., non-HDL-c, Apo B, atherosclerotic index, etc. In all fractions, the highest tertile's were compared to the lowest tertile's. Only the LDL-c/HDL-c ratio was associated with a non-significant, higher risk ratio than LDL-c; all other lipid fractions, including Lp(a), were associated with lower risk ratios. The authors suggested that in Chinese post-primary PCI patient's LDL-c was observed as the best lipid predictor for MACE risk.

Zeng L, Ye Z, Li Y *et al.* Different Lipid Parameters in Predicting Clinical Outcomes in Chinese Statin-Naïve Patients After Coronary Stent Implantation. *Frontiers in cardiovascular medicine* 2021; 8:638663. <http://www.ncbi.nlm.nih.gov/pubmed/?term=33796571>

Improved outcomes in COVID-19 patients with continued statins use during hospitalization

Data Collected in the Spanish SEMI-COVID Registry was used to determine outcomes in hospitalized COVID-19 patients. The participating 150 hospitals included 2921 patients in the registry. This was a cross-sectional, observational retrospective analysis with the inherent limitations of this type, so study design, clinical characteristics were compared to COVID-19 disease outcomes in patients receiving chronic statin therapy and who maintained this therapy during hospitalization versus those who did not. Analysis was based on propensity score matching. Continued statin therapy was associated with lower all-cause mortality; OR:0.67 (0.54–0.83, $p < 0.001$); lower incidence of acute kidney injury; OR: 0.76 (0.6–0.97, $p = 0.025$), acute respiratory distress syndrome; OR:0.78 (0.69- 0.89, $p < 0.001$), and sepsis (4.82% vs 9.85%, $p = 0.008$); and less need for invasive mechanical ventilation, 5.35% vs 8.57 ($p < 0.001$) compared to patients whose statin therapy was withdrawn during hospitalization. The authors concluded that continued use of statins during hospitalization was associated with reduced severe and fatal complications.

Torres-Peña JD, Pérez-Belmonte LM, Fuentes-Jiménez F *et al.* Prior Treatment with Statins is Associated with Improved Outcomes of Patients with COVID-19: Data from the SEMI-COVID-19 Registry. *Drugs* 2021:1-11. <http://www.ncbi.nlm.nih.gov/pubmed/?term=33782908>

Long term statins adherence in secondary prevention associated with significant reduction of MACE risk

Real-world data on long term statins adherence is limited, data collected in the IMPRES Study, a US registry of Intermountain Healthcare ASCVD patients, was queried to determine the association of long term statins adherence on MACE (death, myocardial infarction [MI], and stroke) and MACE+ (MACE + coronary revascularization). A total of 7 339 patients were included; patients had to be prescribed statins within 12 months of diagnosis and 5 years of continuous health insurance or died during the follow-up. Pre-defined categories were based on the proportion of days covered (PDC) and calculated using pharmacy claims for statin use. Patients were stratified into Fully-adherent: PDC>80% for years 1-5 or until death ($n=353$ [4.8%]), short-term-adherent: PDC>80% for years 1-3, ($n=330$ [4.5%]), Early-adherent only: PDC>80% for year 1($n=890$ [12.1%]), complex-adherent: PDC≥80% in any of years 2-5, but not year 1, ($n=1,292$ [17.6%]), and Non-adherent: PDC<80% for years 1-5 or until death, ($n=3,942$ [72.1%]). Better adherence was associated with significantly fewer MACE, 11.6%, 17.9%, 21.9%, 21.1%, and 26.4% for those fully-adherent, short-term-adherent, early-adherent only, complex-adherent, and non-adherent, respectively ($ptrend < 0.0001$). Full adherence over 5 years was associated with an almost 50% lower MACE risk, HR:0.51 (0.37-

0.71). The authors concluded that ASVCD patients that remained statin adherence for at least 5-years were observed to have a long term decreased MACE risk in a linear fashion. May HT, Knowlton KU, Anderson JL *et al.* High Statin Adherence over 5 Years of Follow-up is Associated with Improved Cardiovascular Outcomes in Patients with Atherosclerotic Cardiovascular Disease: Results from the IMPRES Study. European heart journal. Quality of care & clinical outcomes 2021. <http://www.ncbi.nlm.nih.gov/pubmed/?term=33787865>

Real world data on statin used and AD risk

Cognitive decline and the use of lipid-lowering drugs remain fiercely debated among those claiming they increase risk and propose they reduce risk. The Korean National Health Insurance registry was used to explore the association between statin use and the risk of developing Alzheimer's disease (AD). AD patients (N=17172) were matched, based on gender, age, income, and region of residence, with 68 688 controls (1:4). Using a multiple conditional logistic regression model, the association between statin use (number of days used) with AD occurrence was analyzed. Statin use showed an association with a reduction of AD risk; OR: 0.95 (0.92–0.98; p = 0.003). IN the AD patients, statin use was observed to be significantly lower in the subgroups of non-smokers and individuals with normal weight, alcohol consumption less than once a week, total cholesterol level below 200 mg/dL, systolic blood pressure below 140, diastolic blood pressure below 90, and fasting blood glucose below 100 mg/dL. The authors concluded that statins use could reduce the risk of developing AD; this protective effect can even greater in patients with relatively low risk. Kim JH, Lee HS, Wee JH *et al.* Association between Previous Statin Use and Alzheimer's Disease: A Nested Case-Control Study Using a National Health Screening Cohort. Brain Sci 2021; 11. <http://www.ncbi.nlm.nih.gov/pubmed/?term=33804752>

Subclinical AS observed in 75% of healthy Spanish workers

The distinction between primary prevention and secondary prevention is clinically relevant to determine appropriate therapeutic measures to prevent ASCVD complications. In this study of Spanish laborers (The Aragon Workers Health Study), participants (N=2138), without a history of ASCVD, underwent a cardiac ultrasound investigation. Data on the use of CVD preventive medication was obtained as well. In 77.7% of the participants, subclinical atherosclerosis was observed, 31.2% used some form of preventive treatment. In those without preventive treatment, subclinical atherosclerosis was discovered in 73.6%. The use of CVD preventive therapies was associated with a CACS>0; OR:1.37 (1.06-1.78). Statin used was associated with an increased risk of any subclinical atherosclerosis (OR: 1.73) and with a CACS>0 (OR:1.72). The authors concluded that in this cohort of healthy Spanish Workers, three quarters were found the have subclinical manifestations of atherosclerosis and were not treated with the appropriate prevent CVD medications.

Aguilar-Palacio I, Malo S, Jarauta E *et al.* Pharmacological Primary Cardiovascular Prevention and Subclinical Atherosclerosis in Men: Evidence from the Aragon Workers' Health Study. Journal of clinical medicine 2021; 10.
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Relevant publications

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This activity is supported by an educational grant from Viatrix.
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