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

Comparing atorva 40 mg with atorva 10 mg + Ezetimibe 10 mg combination of atorvastatin 10 mg + ezetimibe 10 mg. Near-infrared spectroscopy-intravascular ultrasonography was used at baseline and after 12 months follow-up to determine differences in percent atheroma lesions (PAV) in intermediate lesion segments. Both groups showed significant reductions of LDL-c of 40% and 38%, respectively, and no statistically significant mean differences between the two groups. Absolut change in PAV was -3.2% in the patients allocated to atorvastatin 40 mg vs. -2.9% in those taking 10 mg atorvastatin + 10 mg ezetimibe, resulting in a mean between-group difference of 0.5% (-2.4%
to 2.8%). The pre-defined non-inferiority margin of 5% was not exceeded. The lipid core burden did not change; no difference between the two groups were observed. The authors concluded that both treatment regimens showed similar outcomes in LDL-c reductions and coronary atherosclerosis regression.


Reduced mortality associated with statin use in hospitalized diabetic COVID-19 patients

Statins seem an attractive option for reducing COVID-19 complications and mortality. Currently, most studies that examined the effects of statins are observational, retrospective studies. In this single US hospital retrospective evaluation, 922 patients were evaluated for statin use and a diagnosis of DM2. Using a 1:1 propensity score matching plus multivariate regression analysis, 250 patients (27.1%) that used statins and 136 diabetic patients (32.9%) on statins were compared to those not using statins. Overall statin use was associated with reduced mortality, OR: 0.61 (0.42-0.90; p=0.01). The subgroup analysis of diabetic patients showed an even more substantial impact of statin use, OR:0.35 (0.21-0.61, p<0.001). In contrast with non-diabetic patients that used statins and in whom no significant difference was noted, OR: 1.21 (0.67-2.17; p=0.52). These findings align with earlier observational studies that examined the impact of statins on COVID-19 related morbidity and mortality and emphasized the importance of conducting RCTs to address this important dilemma.


PC-AKI risk reduced in Chinese patients using pre-admission statins

A recurring theme in statin publications is the protective effects of statin in post-contrast acute kidney injury (PC-AKI). In this prospective observational study, 4386 Chinese patients had a CAG or PCI procedure between 2006 and 2019 in a single consortium of hospitals. PC-AKI was observed in 17.9% of the patients; pre-operative statins were used by 83.8%. Using multivariate regression analysis, the risk of PC-AKI was significantly reduced in patients that used statin prior to their hospitalization. OR: 0.5757 (p<0.001). similar outcomes were noted for patients using atorvastatin or rosuvastatin. OR: 1.052 (P=0.558). In subsequent analysis, a direct protective effect of statin was noted that was not correlated with LDL-c lowering (P=0.277) or hsCRP reduction (anti-inflammatory effects (p=0.596)). Although LDL-c...
c lowering and hsCRP reductions had a mediating effect, this was calculated to contribute no more than 1% of the observed benefits. The authors suggested that the pre-operative use of statins is an independent protective factor for PC-AKI. This was independent of the type of statins used and seemed to be a direct effect not related to LDL-c or hsCRP lowering properties.


Guideline recommended treatment of FH patient needs to be improved

The introduction of new potent non-statin LDL-c lowering drugs has prompted recently released lipid management guidelines to focus on improved cholesterol control in Familial hypercholesterolemia (FH). The impact on real-life clinical management of FH patients remains poor, as illustrated by this report from the (GOAL) Guidelines Oriented Approach to Lipid Lowering, Canada project. Physicians were invited to participate, and 248/750 agreed to enroll 12 consecutive patients with CVD or FH and an LDL-c >2.0 mmol/L, despite maximally tolerated statin therapy. The patient had 2 follow-up visits 4-6 months apart. Physicians received online reminders of the Canadian 2009 treatment recommendations.

Among the 2009 enrolled patients, there were 1054 (52.4%) patients with CVD only, 636 (31.7%) with FH only, and 319 (15.9%) with both CVD and FH. FH patients were younger, more likely to be female, non-white, and had significantly higher baseline LDL-c than CVD-only patients, 3.92±1.48 versus 2.96±0.94, P<0.0001, respectively. Statins were less frequently prescribed to FH patients (70.6% versus 79.2%, P=0.0001); however, ezetimibe use was used more by FH patients (28.1% versus 20.4%, P=0.0003). Guideline recommended LDL-c targets (≥ 50% reduction from pre-treatment level or low-density lipoprotein <2.5 mmol/L) was noted in 45.3% at baseline in FH only patients. This increased to 65.8% and 73.6% by visits 2 and 3. None of the CVD patients were at recommended level (≤2.0 mmol/L) at baseline. This increased to 44.3% and 53.3% on the second and third visits. When comparing baseline and last available follow-up visit, 22.0% of patients with FH only, 45.8% of those with CVD only (P<0.0001), and 55.2% with both FH+CVD (P<0.0001) achieved guideline LDL-c goals. The authors concluded that they observed significant treatment inertia in the management of FH patients and suggested intensified educational and support activities to improve the implementation of guideline recommendations.


Meta-analysis evaluating statins effect on atherosclerosis in Chinese patients

This meta-analysis examined the effect of statins on coronary atherosclerosis. In total, 12 studies that enrolled 1180 Chinese patients were included for the final analysis. When comparing statin use with controls, the plaque area was reduced, mean difference of -1.21 (-2.03 to -0.38). Changes in total C, TG, and LDL-c were lower in the statin-treated patients as well. The effective clinical score showed better results as well, mean difference of 3.64 (1.39-9.53, p=0.008). No significant changes were observed for carotid intima-media thickness, mean difference =-0.41 (-0.88 to -0.06; Z =1.7; P=0.09), hsCRP, mean difference =-1.61 (-3.59 to 0.37; Z =1.7; P=0.09) and HDL-c, mean difference =0.14 (-0.02 to 0.30; Z =2.54; P=0.09).


Relevant publications


Basic Science publications


5. Abo-Zalam HB, El-Denshary ES, Abdelsalam RM et al. Therapeutic advancement of simvastatin-loaded solid lipid nanoparticles (SV-SLNs) in treatment of hyperlipidemia and attenuating hepatotoxicity, myopathy and apoptosis.