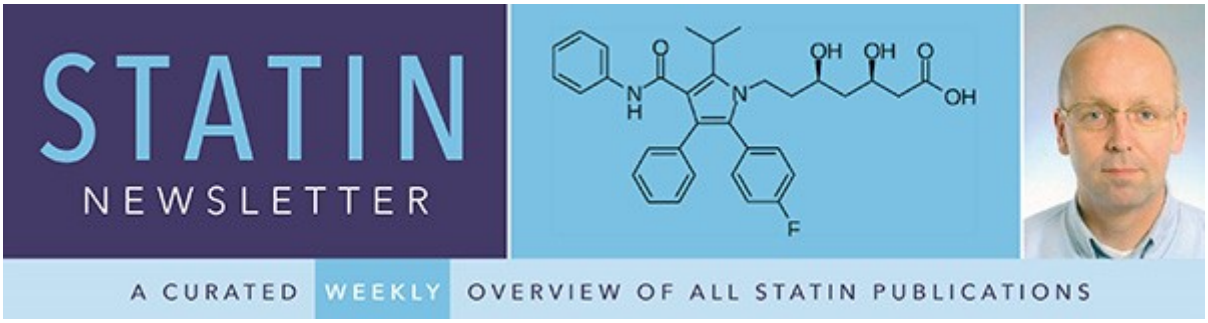

Update week 31 & 32 - 2022

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.

For live updates you can follow me on twitter

Key Publications

1. **Should statins bes started ASAP in ACS pateints**
2. **Surprising effects of statins on sarcopenia in HF**
3. **Canadian guidelines on pediatric lipid management**
4. **Impact of high intensity statins on structural stress in plaque architecture**
5. **Drug interactions with Paxlovid and statins**

Increased survival benefit if statins are administered < 24 hrs. in ACS patients.

Should statins be started < 24hr after admission in patients with severe ACS (Killip class III/IV)? This Chinese national registry of ACS patients with advanced Killip class and early statin initiation were compared to patients with similar Killip class events, in whom statins were not prescribed <24hrs. In the registry, data of 104 516 ACS patients were re-evaluated. There were 12 149 Patients with Killip class III/IV, and 89% started statins early. Using a Multivariate-adjusted logistic regression model, patients with early statin use were compared to patients that started statins later. The study endpoints were: (i)in-hospital mortality and ischemic events; (ii) the dose effect of statins on mortality, and (iii) the interaction between LDL-C) levels and statins on mortality. All outcomes showed the benefit of early statin initiation. Mortality OR 0.31 (0.25-0.39); Ischemic events OR: 0.50 (0.33-0.77). This was noted for in-hospital mortality in patients receiving low-moderate dosages as well as a short-term survival benefit. Intriguingly the short-term mortality benefit was independent of LDL-c, indicating that potential pleiotropic effects of statins contributed to the observed protective effects. In this study, early statin administration was associated with substantial benefit in ACS patients with impaired cardiac functionSong X, Zhou X, Li Z *et al.* Early Statin Therapy and In-Hospital Outcomes in Acute Coronary Syndrome Patients

Presenting with Advanced Killip Class at Admission: Findings from the CCC-ACS Project. Am J Cardiovasc Drugs 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35962306

HF patients using satins less likely to develop sarcopenia

Increased survival benefit if statins are administered < 24 hrs. in ACS patients.
In heart failure (HF) patient's sarcopenia (muscle atrophy that occurs with aging and/or immobility) contributes significantly to impaired cardiac output and poor prognosis. Statin use is postulated as a potential risk factor for developing sarcopenia. In this cross-sectional study, 136 HF patients were recruited from an HF outpatient clinic of a Portuguese university hospital. A total of 25 (18.4%) individuals were categorized as sarcopenic, ranging from 12.2% in
Those < 65 years vs. 30.4% >65 years (p = 0.009). Men were less likely to be sarcopenic (3.3%) vs. 47.8% in women (p < 0.001). Severe sarcopenia accounted for 7.4% of the sample, and sarcopenic obesity was present in 5.1% of the participants. Age was positively associated with sarcopenia; for each year, a 9% increase in the likelihood of being sarcopenic was observed OR = 1.09 (1.01-1.17). Each 1 Kg.m−2 BMI increase was associated with a 21% decrease in the likelihood of sarcopenia OR = 0.79 (0.65-0.96). Patients using five or more medicines had a markedly increased risk of developing sarcopenia, OR = 26.8 (2.01-359.26). Statins were inversely associated with sarcopenia OR = 0.03 (0.01-0.30). A possible suggestion for these surprising findings is that the pleiotropic effects of statins on endothelial function contributed to better neuromuscular fitness.
Valdiviesso R, Sousa-Santos AR, Azevedo LF *et al.* Statins are associated with reduced likelihood of sarcopenia in a sample of heart failure outpatients: a cross-sectional study. BMC Cardiovasc Disord 2022; 22:356. http://www.ncbi.nlm.nih.gov/pubmed/?term=35931947

Canadian paediatric dyslipidemia guidelines – Update for clinical practice

Familial hypercholesterolemia (FH) and other high-risk primary and secondary pediatric lipid disorders are not uncommon. A timely detection/diagnosis, followed by treatment, could significantly impact atherosclerosis and ASCVD risk. Although lifestyle modifications with dietary changes remain the basis when managing pediatric dyslipidemia, medication can be prescribed depending on the severity and ASCVD risk. Well-established lipid-lowering drugs such as statins have been successfully tested in numerous clinical trials with undisputable significant improvement and minimal side effects or tolerability issues. Novel potent LDL-c lowering medications such as PCSK9ab are now in the process of being evaluated in pediatric trials, potentially supporting the use of these new and very effective LDL-c drugs in the near future. These could be of significant value in children with severe heterozygous or homozygous FH. The authors underline that the development of knowledge translation strategies is urgently needed to improve the screening and detection of lipid disorders in Canadian youth.
Khoury M, Bigras JL, Cummings EA *et al.* The Detection, Evaluation, and Management of Dyslipidemia in Children and Adolescents: A Canadian Cardiovascular Society/Canadian Pediatric Cardiology Association Clinical Practice Update. Can J Cardiol 2022; 38:1168-1179. http://www.ncbi.nlm.nih.gov/pubmed/?term=35961755

High intensity statin improves plaque architecture by reducing structural stress

Arguments for using high-intensity statins (HIS) are reflected in all lipid management guidelines, predominantly based on reducing ASCVD complications in those that use high-dose, high-intensity statins. The authors of this article share interesting data on the impact of HIS on plaque structural stress (PSS), a major cause of plaque rupture and subsequent ASCVD events. Changes in PSS, plaque size, and composition were obtained from 7348 baseline and follow-up virtual histology intravascular ultrasound images (IVUS) in patients that were treated with standard medical therapy (n=18); the control group and patients using HIS: Atorvastatin 80 mg (N=20) or rosuvastatin 40 mg (N=22). A significant difference was noted between HIS use and the control patients on PSS (P<0.001). PSSpeak increased significantly in the control lesions with plaque burden (PB) >60% (p=0.04); this was absent

in the patients using HIS. Changes in PSSpeak correlated poorly with changes in lumen and plaque area, plaque composition, or lipid-lowering. However, significant associations were noted with changes in lumen curvature, irregularity, and roughness ($P < 0.05$), all of which were reduced in HIS patients. In this observational study, HIS was associated with smoothening of plaques by reducing plaque/lumen roughness, irregularity, and curvature. This represents a novel mechanism whereby HIS may reduce PSS and may protect against plaque ruptures and MACE.

Gu SZ, Costopoulos C, Huang Y *et al.* **High-intensity statin treatment is associated with reduced plaque structural stress and remodelling of artery geometry and plaque architecture.** Eur Heart J Open 2021; 1:oeab039. http://www.ncbi.nlm.nih.gov/pubmed/?term=35919883

Paxlovid and statins – warning

COVID complications and ASCVd are closely interconnected. Patients at risk for CVD have a greater chance of hospital or ICU admission, and those infected with the SARS-CoV-2 virus are also at risk for cardiac complications. Currently, the use of Paxlovid is increasing based on the favorable outcomes in patients at risk for COVID complications. Both Paxlovid and statins are metabolized by Cytochrome P4507A (CYP 3A), which may result in significant drug interactions. Should statins be stopped when patients receive Paxlovid? The authors of this review would be more in favor of changing the statin type or dose reduction; a potential rebound effect of the cardiovascular system triggered by a sudden withdrawal of statins is thus avoided. Simvastatin and lovastatin should be substituted, e.g., pravastatin or Fluvastatin, while for patients using atorvastatin or rosuvastatin, a dose reduction is recommended. The treatment course of Paxlovid is 5-days; patients need to be instructed on potential signs or symptoms of harmful drug interactions and to contact their physician should they occur.

Vuorio A, Kovanen PT, Raal F. **Cholesterol-lowering drugs for high-risk hypercholesterolemia patients with COVID-19 while on Paxlovid™ therapy.** Future Virol 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35935448

Relevant Publications

1. Swei EC, Brar AK, Rice JD *et al.* Statin-Induced Rhabdomyolysis Associated With Transjugular Intrahepatic Portosystemic Shunt Placement. ACG Case Rep J 2022; 9:e00774. http://www.ncbi.nlm.nih.gov/pubmed/?term=35919670
2. Kelsey MD, Newby LK. Recommendations for use of ezetimibe and/or PCSK9 inhibitors in patients with elevated LDL-C. Annals of internal medicine 2022; 175:Jc86. http://www.ncbi.nlm.nih.gov/pubmed/?term=35914252
3. Tanner M. In diabetes, some statins reduce non-HDL-C better than others vs. placebo. Annals of internal medicine 2022; 175:Jc89. http://www.ncbi.nlm.nih.gov/pubmed/?term=35914251
4. Gross M, Schwartz SW, Sebastião YV *et al.* LDL Reduction and Risk of Diabetes in Veteran Statin Users. The Annals of pharmacotherapy 2022:10600280221115816. http://www.ncbi.nlm.nih.gov/pubmed/?term=35912948
5. Durai V, Redberg RF. Statin therapy for the primary prevention of cardiovascular disease: Cons. Atherosclerosis 2022; 356:46-49. http://www.ncbi.nlm.nih.gov/pubmed/?term=35934533
6. Razavi AC, Mehta A, Sperling LS. Statin therapy for the primary prevention of cardiovascular disease: Pros. Atherosclerosis 2022; 356:41-45. http://www.ncbi.nlm.nih.gov/pubmed/?term=35945050
7. Ohkoshi-Yamada M, Kamimura K, Kimura A *et al.* Effects of a selective PPARα modulator, sodium-glucose cotransporter 2 inhibitor, and statin on the myocardial

morphology of medaka nonalcoholic fatty liver disease model. Biochem Biophys Res Commun 2022; 625:116-121. http://www.ncbi.nlm.nih.gov/pubmed/?term=35952608
8. Choo OS, Lee YY, Kim YS *et al.* Effect of statin on age-related hearing loss via drug repurposing. Biochim Biophys Acta Mol Cell Res 2022; 1869:119331. http://www.ncbi.nlm.nih.gov/pubmed/?term=35963547
9. Kuwahara M, Akasaki Y, Goto N *et al.* Fluvastatin promotes chondrogenic differentiation of adipose-derived mesenchymal stem cells by inducing bone morphogenetic protein 2. BMC pharmacology & toxicology 2022; 23:61. http://www.ncbi.nlm.nih.gov/pubmed/?term=35945639
10. Lehtisalo M, Taskinen S, Tarkiainen EK *et al.* A comprehensive pharmacogenomic study indicates roles for SLCO1B1, ABCG2 and SLCO2B1 in rosuvastatin pharmacokinetics. Br J Clin Pharmacol 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35942816
11. Maeda-Minami A, Takagi M, Mano Y *et al.* Association between statins and incidence of cancer in patients with dyslipidemia using large-scale health insurance claims data. Cancer prevention research (Philadelphia, Pa.) 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35914924
12. Alvi RM, Quinaglia T, Spahillari A *et al.* The Prediction of Cardiac Events Using Contemporary Risk Prediction Models after Radiation Therapy for Head and Neck Cancer. Cancers 2022; 14. http://www.ncbi.nlm.nih.gov/pubmed/?term=35954315
13. Natsuaki M, Morimoto T, Iimuro S *et al.* Thrombotic Risk Stratification and Intensive Statin Therapy for Secondary Prevention of Coronary Artery Disease - Insights From the REAL-CAD Study. Circulation journal : official journal of the Japanese Circulation Society 2022; 86:1416-1427. http://www.ncbi.nlm.nih.gov/pubmed/?term=35934778
14. Doiron S, Paquette M, Baass A *et al.* Association between circulating PCSK9 and proteinuria in nephrotic syndrome: A cross-sectional study. Clin Biochem 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35940295
15. Deng L, Deng W. Association of Statin Usage and the Development of Diabetes Mellitus after Acute Pancreatitis. Clinical gastroenterology and hepatology : the official clinical practice journal of the American Gastroenterological Association 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35933073
16. Shin HS, Jun BG, Yi SW. Impact of diabetes, obesity, and dyslipidemia on the risk of HCC in patients with chronic liver diseases. Clinical and molecular hepatology 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35934813
17. Yang Q, Yang Y, Li X. Related Factors of Cerebral Hemorrhage after Cerebral Infarction and the Effect of Atorvastatin Combined with Intensive Nursing Care. Comput Math Methods Med 2022; 2022:9546006. http://www.ncbi.nlm.nih.gov/pubmed/?term=35959354
18. Gyurjian K, Schweis F, Patel S *et al.* Acute myocardial infarction in young adults with chronic kidney disease. Coronary artery disease 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35942623
19. Diamond DM, Bikman BT, Mason P. Statin therapy is not warranted for a person with high LDL-cholesterol on a low-carbohydrate diet. Current opinion in endocrinology, diabetes, and obesity 2022; 29:497-511. http://www.ncbi.nlm.nih.gov/pubmed/?term=35938780
20. Kendrick M. Assessing cardiovascular disease: looking beyond cholesterol. Current opinion in endocrinology, diabetes, and obesity 2022; 29:427-433. http://www.ncbi.nlm.nih.gov/pubmed/?term=35938775
21. Westman EC. A review of decision aids to assess cardiovascular risk. Current opinion in endocrinology, diabetes, and obesity 2022; 29:420-426. http://www.ncbi.nlm.nih.gov/pubmed/?term=35943187
22. Fitch KV, Fulda ES, Grinspoon SK. Statins for primary cardiovascular disease prevention among people with HIV: emergent directions. Curr Opin HIV AIDS 2022; 17:293-300. http://www.ncbi.nlm.nih.gov/pubmed/?term=35938463
23. Durrington PN, Bashir B, Bhatnagar D, Soran H. Lipoprotein (a) in familial hypercholesterolaemia. Curr Opin Lipidol 2022; 33:257-263. http://www.ncbi.nlm.nih.gov/pubmed/?term=35942820

24. Abdul-Rahman T, Bukhari SMA, Herrera EC *et al.* Lipid Lowering Therapy: An Era Beyond Statins. Curr Probl Cardiol 2022; 47:101342. http://www.ncbi.nlm.nih.gov/pubmed/?term=35918009
25. Serés-Noriega T, Giménez M, Perea V *et al.* Use of the Steno T1 Risk Engine Identifies Preclinical Atherosclerosis Better Than Use of ESC/EASD-2019 in Adult Subjects With Type 1 Diabetes at High Risk. Diabetes Care 2022; 45:2412-2421. http://www.ncbi.nlm.nih.gov/pubmed/?term=35944257
26. Kim K, Ginsberg HN, Choi SH. New, Novel Lipid-Lowering Agents for Reducing Cardiovascular Risk: Beyond Statins. Diabetes Metab J 2022; 46:517-532. http://www.ncbi.nlm.nih.gov/pubmed/?term=35929170
27. Golder S, Weissenbacher D, O'Connor K *et al.* Patient-Reported Reasons for Switching or Discontinuing Statin Therapy: A Mixed Methods Study Using Social Media. Drug Saf 2022; 45:971-981. http://www.ncbi.nlm.nih.gov/pubmed/?term=35933649
28. Weingärtner O, Marx N, Klose G, Laufs U. [Therapeutic options to reduce LDL-cholesterol beyond statins]. Deutsche medizinische Wochenschrift (1946) 2022; 147:1001-1012. http://www.ncbi.nlm.nih.gov/pubmed/?term=35915886
29. Goldberg RB. Dyslipidemia in Diabetes: When and How to Treat? Endocrinology and metabolism clinics of North America 2022; 51:603-624. http://www.ncbi.nlm.nih.gov/pubmed/?term=35963631
30. Newman CB. Safety of Statins and Nonstatins for Treatment of Dyslipidemia. Endocrinology and metabolism clinics of North America 2022; 51:655-679. http://www.ncbi.nlm.nih.gov/pubmed/?term=35963634
31. Patel A, Patni N. Evaluation and Management of Lipids and Lipoproteins in Children and Adolescents. Endocrinology and metabolism clinics of North America 2022; 51:573-588. http://www.ncbi.nlm.nih.gov/pubmed/?term=35963629
32. Tobert JA. LDL Cholesterol-How Low Can We Go? Endocrinology and metabolism clinics of North America 2022; 51:681-690. http://www.ncbi.nlm.nih.gov/pubmed/?term=35963635
33. Zambon A, Averna M, D'Erasmo L *et al.* New and Emerging Therapies for Dyslipidemia. Endocrinology and metabolism clinics of North America 2022; 51:635-653. http://www.ncbi.nlm.nih.gov/pubmed/?term=35963633
34. Ridker PM, Tuttle KR, Perkovic V *et al.* Inflammation drives residual risk in chronic kidney disease: a CANTOS substudy. Eur Heart J 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35943897
35. Miller M, Bhatt DL, Steg PG *et al.* Potential Effects of Icosapent Ethyl on Cardiovascular Outcomes in Cigarette Smokers: REDUCE-IT Smoking. European heart journal. Cardiovascular pharmacotherapy 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35953437
36. Bartholomew CL, Muhlestein JB, May HT *et al.* Randomized controlled trial of once-per-week intermittent fasting for health improvement: the WONDERFUL trial. Eur Heart J Open 2021; 1:oeab026. http://www.ncbi.nlm.nih.gov/pubmed/?term=35919268
37. Holmberg H, Sjölander M, Glader EL *et al.* Time to initiation of lipid-lowering drugs for subclinical atherosclerosis: sub-study of VIPVIZA randomized controlled trial, with single-arm cross-over. Eur Heart J Open 2022; 2:oeac003. http://www.ncbi.nlm.nih.gov/pubmed/?term=35919662
38. Aaron SE, Tomoto T, Zhang R *et al.* Statin contribution to middle cerebral artery blood flow velocity in older adults at risk for dementia. Eur J Appl Physiol 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35960268
39. Zhang C, Xiang D, Zhao Q *et al.* Curcumin nicotinate decreases serum LDL cholesterol through LDL receptor-mediated mechanism. Eur J Pharmacol 2022; 931:175195. http://www.ncbi.nlm.nih.gov/pubmed/?term=35964656
40. Onal B, Alaylioglu M, Yenmis G *et al.* Pleiotropic effects of pitavastatin: a pilot study using the saphenous vein endothelial cell model of endothelial injury and prevention of atherosclerosis. Eur Rev Med Pharmacol Sci 2022; 26:5210-5217. http://www.ncbi.nlm.nih.gov/pubmed/?term=35916819
41. Lou D, Fu R, Gu L *et al.* Association between statins' exposure with incidence and prognosis of gastric cancer: an updated meta-analysis. Expert Rev Clin Pharmacol

2022; 15:1127-1138. http://www.ncbi.nlm.nih.gov/pubmed/?term=35947078
42. Engell AE, Bathum L, Andersen JS *et al.* Factors associated with statin discontinuation near end of life in a Danish primary health care cohort. Family practice 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35950318
43. Shlomai G, Shemesh J, Segev S *et al.* The Multi-Ethnic Study of Atherosclerosis-Calcium Score Improves Statin Treatment Allocation in Asymptomatic Adults. Frontiers in cardiovascular medicine 2022; 9:855390. http://www.ncbi.nlm.nih.gov/pubmed/?term=35911540
44. Sudano I, Mach F, Moccetti T *et al.* Optimized Treatment of Refractory Hypercholesterolemia in Patients With Atherosclerotic Cardiovascular Disease or Heterozygous Familial Hypercholesterolemia With Alirocumab (OPTIMIZE). Frontiers in cardiovascular medicine 2022; 9:953040. http://www.ncbi.nlm.nih.gov/pubmed/?term=35911507
45. Nurm M, Reigo A, Nõukas M *et al.* Do Biobank Recall Studies Matter? Long-Term Follow-Up of Research Participants With Familial Hypercholesterolemia. Frontiers in genetics 2022; 13:936131. http://www.ncbi.nlm.nih.gov/pubmed/?term=35928446
46. Xiang T, Zhang X, Wei Y *et al.* Possible mechanism and Atorvastatin-based treatment in cupping therapy-related subdural hematoma: A case report and literature review. Frontiers in neurology 2022; 13:900145. http://www.ncbi.nlm.nih.gov/pubmed/?term=3593706
47. Attardo S, Musumeci O, Velardo D, Toscano A. Statins Neuromuscular Adverse Effects. Int J Mol Sci 2022; 23. http://www.ncbi.nlm.nih.gov/pubmed/?term=35955495
48. Nguyen TT, Kim H, Huy TXN *et al.* Simvastatin Inhibits Brucella abortus Invasion into RAW 264.7 Cells through Suppression of the Mevalonate Pathway and Promotes Host Immunity during Infection in a Mouse Model. Int J Mol Sci 2022; 23. http://www.ncbi.nlm.nih.gov/pubmed/?term=35955474
49. Rosoff DB, Bell AS, Jung J *et al.* Mendelian Randomization Study of PCSK9 and HMG-CoA Reductase Inhibition and Cognitive Function. J Am Coll Cardiol 2022; 80:653-662. http://www.ncbi.nlm.nih.gov/pubmed/?term=35953131
50. Ballantyne CM, Bays HE, Louie MJ *et al.* Factors Associated With Enhanced Low-Density Lipoprotein Cholesterol Lowering With Bempedoic Acid. J Am Heart Assoc 2022; 11:e024531. http://www.ncbi.nlm.nih.gov/pubmed/?term=35916348
51. García RV, García JEP, Navas WD *et al.* Impact of a virtual lipid clinic on lipid-lowering therapy, LDL cholesterol levels, and outcomes in patients with acute coronary syndrome. J Clin Lipidol 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35963739
52. Masson W, Corral P, Barbagelata L *et al.* Reduction of cardiovascular events with the use of lipid-lowering medication in patients with familial hypercholesterolemia or severe primary hypercholesterolemia: A systematic review. J Clin Lipidol 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35918256
53. Spencer SJ, Jones LK, Guzauskas GF *et al.* Cost-effectiveness of population-wide genomic screening for familial hypercholesterolemia in the United States. J Clin Lipidol 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35961838
54. Hsu SH, Syu DK, Wang YC *et al.* Metformin, Statin Use, and Female Colorectal Cancer: A Population-Based Cohort Study in Taiwan. Journal of clinical medicine 2022; 11. http://www.ncbi.nlm.nih.gov/pubmed/?term=35956087
55. Rikhi R, Shapiro MD. Newer and Emerging LDL-C Lowering Agents and Implications for ASCVD Residual Risk. Journal of clinical medicine 2022; 11. http://www.ncbi.nlm.nih.gov/pubmed/?term=35956226
56. Kushner P. Detecting and Managing ASCVD in Women: A Focus on Statins. The Journal of family practice 2022; 71:S17-s22. http://www.ncbi.nlm.nih.gov/pubmed/?term=35960940
57. Malvestutto C. The Evolving Landscape of ASCVD Risk Among Patients With HIV. The Journal of family practice 2022; 71:S58-s62. http://www.ncbi.nlm.nih.gov/pubmed/?term=35960946
58. Sax OC, Bains SS, Chen Z *et al.* Preoperative Statin Exposure Reduces Periprosthetic Fractures and Revisions following Total Knee Arthroplasty. J Knee Surg 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35944569

59. Jing J, Yang X, Wu Y *et al.* A score to predict the stroke recurrence of patients with embolic stroke of undetermined source. Journal of neurology 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35925397
60. Peres EC, Victorio JA, Nunes-Souza V *et al.* Simvastatin protects against intestinal ischemia/reperfusion-induced pulmonary artery dysfunction. Life sciences 2022; 306:120851. http://www.ncbi.nlm.nih.gov/pubmed/?term=35926590
61. Bâldea I. Why Ortho- and Para-Hydroxy Metabolites Can Scavenge Free Radicals That the Parent Atorvastatin Cannot? Important Pharmacologic Insight from Quantum Chemistry. Molecules (Basel, Switzerland) 2022; 27. http://www.ncbi.nlm.nih.gov/pubmed/?term=35956986
62. Nicholls SJ, Ditmarsch M, Kastelein JJ *et al.* Lipid lowering effects of the CETP inhibitor obicetrapib in combination with high-intensity statins: a randomized phase 2 trial. Nat Med 2022; 28:1672-1678. http://www.ncbi.nlm.nih.gov/pubmed/?term=35953719
63. Jamialahmadi T, Baratzadeh F, Reiner Ž *et al.* The Effects of Statin Therapy on Oxidized LDL and Its Antibodies: A Systematic Review and Meta-Analysis. Oxidative medicine and cellular longevity 2022; 2022:7850659. http://www.ncbi.nlm.nih.gov/pubmed/?term=35958018
64. Abukhalil AD, Alyan M, AbuAita W *et al.* Adherence to Clinical Guidelines on STATIN Prescribing Among Diabetic Patients Aged 40-75 Years Old in a Primary Care Setting: A Cross-Sectional Study. Patient preference and adherence 2022; 16:1855-1863. http://www.ncbi.nlm.nih.gov/pubmed/?term=35942227
65. Al Rifai M, Yao J, Guo X *et al.* Association of polygenic risk scores with incident atherosclerotic cardiovascular disease events among individuals with coronary artery calcium score of zero: The multi-ethnic study of atherosclerosis. Prog Cardiovasc Dis 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35952728
66. Perrone V, Giacomini E, Sangiorgi D *et al.* Evaluation of the Therapeutic Pattern and Pharmaco-Utilization in Hypercholesterolemic Patients Treated with Statins: A Retrospective Study on Italian Real-World Data. Risk Manag Healthc Policy 2022; 15:1483-1489. http://www.ncbi.nlm.nih.gov/pubmed/?term=35923556
67. Storm-Larsen C, Hande LN, Kummen M *et al.* Reduced gut microbial diversity in familial hypercholesterolemia with no effect of omega-3 polyunsaturated fatty acids intervention - a pilot trial. Scandinavian journal of clinical and laboratory investigation 2022; 82:363-370. http://www.ncbi.nlm.nih.gov/pubmed/?term=35913798
68. Chou R, Cantor A, Dana T *et al.* U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. In: Statin Use for the Primary Prevention of Cardiovascular Disease in Adults: A Systematic Review for the U.S. Preventive Services Task Force. Rockville (MD): Agency for Healthcare Research and Quality (US); 2022.
69. Santoni M, Molina-Cerrillo J, Myint ZW *et al.* Concomitant Use of Statins, Metformin, or Proton Pump Inhibitors in Patients with Advanced Renal Cell Carcinoma Treated with First-Line Combination Therapies. Target Oncol 2022; 17:571-581. http://www.ncbi.nlm.nih.gov/pubmed/?term=35947324
70. Emara MM, Elsawy NH, Abdelaaty KM *et al.* Atorvastatin for reduction of 28-day mortality in hospitalized COVID-19 patients: study protocol for a randomized, double-blinded, placebo-controlled, clinical trial. Trials 2022; 23:636. http://www.ncbi.nlm.nih.gov/pubmed/?term=35941669
71. Goßlau Y, Warm TD, Hernandez Cancino EF *et al.* The prevalence of vascular complications in SARS-CoV-2 infected outpatients. Wiener medizinische Wochenschrift (1946) 2022:1-5. http://www.ncbi.nlm.nih.gov/pubmed/?term=35939218
72. Monteiro A, Housley SB, Kuo CC *et al.* The Effect of Statins on the Recurrence of Chronic Subdural Hematomas: A Systematic Review and Meta-Analysis. World neurosurgery 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35917921
73. Wang GY, Lin PF, Yan CZ. [Research progress on the pathogenesis and intervention of statins-associated muscle symptoms]. Zhonghua nei ke za zhi 2022; 61:953-958. http://www.ncbi.nlm.nih.gov/pubmed/?term=35922224
74. Mao W, Cai Y, Chen D *et al.* Statin shapes inflamed tumor microenvironment and enhances immune checkpoint blockade in non-small cell lung cancer. JCI insight

2022; 7. http://www.ncbi.nlm.nih.gov/pubmed/?term=35943796
75. Park SK, Lee JH, Hwang HS *et al.* Association of Meibomian Gland Dysfunction with Oral Statin Use. Journal of clinical medicine 2022; 11. http://www.ncbi.nlm.nih.gov/pubmed/?term=35956248

Basic Science

1. Liu X, Li T, Wang F *et al.* Controlling sustained statins release in multi-layered composite scaffolds for healing of osteoporotic bone defects. Biomater Adv 2022; 137:212838. http://www.ncbi.nlm.nih.gov/pubmed/?term=35929268
2. Samura B, Panasenko M. SST2 AS A PREDICTOR OF STATIN TREATMENT EFFICACY IN PATIENTS WITH MULTIPLE MYELOMA. Georgian medical news 2022:18-22. http://www.ncbi.nlm.nih.gov/pubmed/?term=35959872
3. Schoch L, Sutelman P, Suades R *et al.* Hypercholesterolemia-Induced HDL Dysfunction Can Be Reversed: The Impact of Diet and Statin Treatment in a Preclinical Animal Model. Int J Mol Sci 2022; 23. http://www.ncbi.nlm.nih.gov/pubmed/?term=35955730
4. Wang L, Zheng Z, Zhu L *et al.* Geranylgeranyl pyrophosphate depletion by statins compromises skeletal muscle insulin sensitivity. Journal of cachexia, sarcopenia and muscle 2022. http://www.ncbi.nlm.nih.gov/pubmed/?term=35961942
5. Saud A, Ali NA, Gali F, Hadi N. The role of cytokines, adhesion molecules, and toll-like receptors in atherosclerosis progression: the effect of Atorvastatin. Journal of medicine and life 2022; 15:751-756. http://www.ncbi.nlm.nih.gov/pubmed/?term=3592836

To subscribe to the Statin Literature Update Service Click HERE

Facebook Twitter Website

mailing address:
lansberg@gmail.com