

Press release

New benefits of cholesterol medication uncovered

Statins (cholesterol lowering drugs) are used by hundreds of millions of people. Some of the molecular effects of statins are still unclear. A new molecular profiling technology now uncovers unexpected benefits and rules out certain side effects of statins. The technique will speed up the development of new medications to prevent heart disease.

A study led by researchers from the University of Oulu, Finland, has uncovered novel molecular effects of statin medication. By using a state-of-the-art blood screening technology and genetic information from almost 28,000 individuals, the researchers demonstrated that statins affect people's molecular profile in an unanticipated way. These results give a better molecular understanding how statins lower cholesterol and the risk for heart disease. The blood screening technology can also be used to uncover the molecular effects of novel types of drugs aimed to lower blood lipids and identify potential side effects.

Statin medication is the most widely prescribed drug class in the world. Statins are known to decrease the risk for heart disease by lowering blood levels of LDL (so-called "bad") cholesterol. However, statins were found to reduce many other lipids as well, and some of these are also causing heart disease. The blood screening technology allows to measure these lipids from large collections of blood samples. The results showed that statin medication is considerably more effective in lowering these adverse lipids than previously anticipated.

The novel molecular profiling technology not only provides information on lipids. At the same time, the study indicated no undesired side effects from statin medication on many new blood biomarkers for heart disease and diabetes. Although statins are known to be safe, such information at the molecular level was new and will be useful when developing new medications.

The novel concept of combining extensive metabolic profiling with genetic information will therefore also be important to uncover the molecular effects of novel drugs aimed at preventing heart disease and other metabolic diseases, says Dr. Peter Würtz, one of the leading authors of the study.

The molecular discoveries were made possible thanks to the new blood screening methodology developed by the Computational Medicine Research Team in Finland. The method provides over 200 biomarkers from a single blood sample. It provides metabolic profiling in an affordable manner and is therefore rapidly becoming widespread in biobanks across Europe and also globally.

The study was led by researchers from the Computational Medicine Research Team at the University of Oulu, Finland, and was conducted in international collaboration with researchers from, for example, the University of Eastern Finland, the Finnish National Institute for Health and Welfare, University College London, and University of Bristol.

Original article:

P Würtz, Q Wang, P Soininen, AJ Kangas, G Fatemifar, T Tynkkynen, M Tiainen, M Perola, T Tillin, AD Hughes, P Mäntyselkä, M Kähönen, T Lehtimäki, N Sattar, AD Hingorani, JP Casas, V Salomaa, M Kivimäki, MR Järvelin, G Davey Smith, M Vanhala, DA Lawlor, OT Raitakari, N Chaturvedi, J Kettunen, M Ala-Korpela.

Metabolomic profiling of statin use and genetic inhibition of HMG-CoA reductase.

Journal of the American College of Cardiology.

The publication is freely available at <http://dx.doi.org/10.1016/j.jacc.2015.12.060>.
(link live when embargo ends)

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