

Genetic clues link lipoprotein A to prostate cancer risk

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A new analysis has uncovered a potential link between higher prostate cancer risk and genetic variants associated with higher bloodstream levels of the cholesterol-transporting molecule lipoprotein A. Anna

Ioannidou of Imperial College London, U.K., and colleagues present these findings in the open-access journal *PLOS Medicine*.

Some factors associated with higher risk of [prostate cancer](#) cannot be modified, such as older age and being of African descent. Meanwhile, other [risk factors](#) for the aggressive form of the disease, such as smoking and obesity, can potentially be modified. Previous research suggests that higher blood levels of lipids might also be associated with increased risk. If so, lipid-lowering drugs could theoretically reduce [prostate cancer risk](#). However, the existing evidence for associations between [blood lipids](#) and prostate cancer has been inconclusive.

To better understand these possible associations, Ioannidou and colleagues analyzed links between prostate cancer risk and several blood lipids: namely, lipoprotein A, [low-density lipoprotein cholesterol](#), high-density lipoprotein cholesterol, triglycerides, and apolipoproteins A and B. They drew on two large research initiatives, U.K. Biobank and the PRACTICAL consortium, in order to analyze genomic and prostate cancer-risk data for hundreds of thousands of individuals.

The study employed a method known as Mendelian randomization, which harnesses the inherent randomness of the genetic process of meiosis to boost the validity of an analysis. So, instead of considering direct measurements of lipids in the bloodstream, the researchers evaluated variations in individuals' DNA sequences that are associated with different blood levels of the lipids. Then, they analyzed if these genetic variants were statistically linked to prostate cancer risk.

The analysis showed that genetic variants that predict higher blood levels of lipoprotein A were associated with a higher overall risk of prostate cancer, and also a higher risk of advanced or early-age-onset prostate cancer. The researchers did not find any significant associations for any of the other blood lipids.

These findings suggest the possibility that lipoprotein A-lowering drugs could be developed or repurposed to lower risk of prostate cancer for some individuals. More research will be needed to confirm the associations observed in this study and to clarify the underlying biological mechanisms.

The authors add, "Our study suggests that individuals with higher lipoprotein A blood levels, which is a protein that transports cholesterol in the blood, may have a greater risk of developing prostate cancer."

More information: Ioannidou A, Watts EL, Perez-Cornago A, Platz EA, Mills IG, Key TJ, et al. (2022) The relationship between lipoprotein A and other lipids with prostate cancer risk: A multivariable mendelian randomisation study. *PLoS Med* 19(1): e1003859.

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