



Why a common HIV drug increases risk of heart attack

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Clinical researchers in Sydney have for the first time shown why a commonly used type of HIV drug is associated with a higher risk of heart attack.

Research undertaken by Associate Professor Katherine Samaras and Professor Andrew Carr at the Garvan Institute of Medical Research and St. Vincent's Hospital examined the effects of two anti-HIV drugs, ritonavir and raltegravir, on blood fat metabolism.

Ritonavir, a type of drug known as a protease inhibitor, is commonly used to treat HIV, often as a 'backbone' to other drugs, and is implicated in a number of metabolic complications such as increases in the fasting levels of cholesterol. Raltegravir is a newer drug that has fewer metabolic effects.

Twenty people participated in the study, ten taking ritonavir, ten raltegravir, specifically examining different blood fat levels after eating, as higher blood fat levels after meals are associated with higher heart disease risk.

After one month, ritonavir caused significantly higher levels of the atherosclerosis-inducing LDL cholesterol after a meal, compared to raltegravir.

The findings are published in the prestigious journal *AIDS*, now online.

"One unique aspect of our study is that we gave short-term medication to people without HIV infection, which allowed us to detect the exact effects of ritonavir and raltegravir, excluding the potential effects of the virus or the other drugs that are also needed to treat HIV," said Associate Professor Samaras.

"While a few other studies have investigated post-meal blood fat and sugar metabolism, this is the most comprehensive study of the post-meal metabolic response with these medications to-date."

"About half the heart risk of protease inhibitor therapy has never been explained. Our findings of higher post-meal LDL cholesterol after food may explain at least some of this missing link in accelerated heart risk. Our results will be of great interest to people living with HIV and advocacy groups keen to promote better health in those living with HIV-infection."

"We believe our results will immediately influence the treatment of HIV-infection."

“By studying lipid levels before and after meals, our study has shown that ritonavir, which most HIV-infected adults will probably receive for many years, causes more severe lipid changes that had been previously realised,” said Professor Carr.

“Our data may explain why patients receiving protease inhibitors have rates of heart attack that are higher than estimates derived from conventional heart disease risk calculators, which only use fasting cholesterol values. HIV patients may therefore need more aggressive management of heart disease risk than previously appreciated.”

ABOUT GARVAN

The Garvan Institute of Medical Research was founded in 1963. Initially a research department of St Vincent's Hospital in Sydney, it is now one of Australia's largest medical research institutions with nearly 500 scientists, students and support staff. Garvan's main research programs are: Cancer, Diabetes & Obesity, Immunology and Inflammation and Neuroscience. Garvan's mission is to make significant contributions to medical science that will change the directions of science and medicine and have major impacts on human health. The outcome of Garvan's discoveries is the development of better methods of diagnosis, treatment, and ultimately, prevention of disease.

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