



HIV/Hepatitis C Virus and HIV/Hepatitis B Virus Co-infections Protect Against Antiretroviral-Related Hyperlipidaemia

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What research question is addressed by HIV/hepatitis C (HCV) and HIV/hepatitis B (HBV) co-infections protect against antiretroviral-related hyperlipidaemia?

Hyperlipidaemia (abnormally high levels of lipids – a type of fat cell found in the blood) contributes to health conditions such as heart disease and is one of the side effects of antiretroviral drugs (ARVs) used to treat HIV infection. Interactions among HIV, viral hepatitis, ARVs and lipids are poorly understood. This study examines the impact of co-infection with HIV and hepatitis C virus (HCV) or HIV and hepatitis B virus (HBV) on hyperlipidaemia.

What was the study conclusion?

The study found that HIV/HCV co-infection and, to a less certain extent, HIV/HBV co-infection, help protect against ARV-related hyperlipidaemia.

Why is this question important?

Many PHAs in Ontario are co-infected with HCV and/or HBV because of common risk factors for transmission (such as sharing contaminated needles or having unprotected sex). Studies have shown that people who are co-infected with HIV and either HCV or HBV do not respond as well to treatment and are more likely to have liver-associated side effects compared to people who are infected with only one virus (mono-infected). However, there is some evidence that the abnormal lipid profile (the type and concentration of lipids in the blood) observed in PHAs after being placed on ART may be less pronounced in people co-infected with HCV. Due to the impact of HAART on metabolism, understanding the complex interactions among viruses, medications and the host is important to informing the care and treatment of PHAs.

How was the study conducted?

Researchers reviewed clinical data from three groups of people in the OCS: people mono-infected with HIV, people co-infected with HIV/HCV (including a sub-group of people infected with HIV, HCV and HBV), and people co-infected with HIV/HBV. To be included, participants had to have been on highly-active antiretroviral therapy (HAART), but not HCV treatment (either before or during the study). There were 2,999 people in the study: 1,587 HIV mono-infected (78.1%), 190 HIV/HBV co-infected (9.3%) and 255 HIV/HCV co-infected (12.6%), including 32 individuals who were infected with HIV, HCV and HBV. Researchers reviewed blood lipid levels at baseline (defined as when study participants were placed on HAART), at six months, at 12 months and then at 12 month intervals thereafter.



What were the main results of the study?

Study investigators found that participants who were co-infected with HIV/HCV or HIV/HBV were less likely to have hyperlipidaemia or need lipid-lowering drugs (such as drugs that reduce cholesterol). Factors associated with an increased risk of hyperlipidaemia included age and male gender (i.e., the older the study participant, the more likely he or she was to have elevated lipid levels, with men having disproportionately higher lipid levels compared to women).

What do the study results mean for the treatment and care of people living with HIV?

The study results were consistent with previous studies indicating a relationship between chronic HCV infection and lower lipid levels as well as studies indicating higher lipid levels among people who clear HCV following HCV treatment compared to those with chronic HCV infection. The relationship between HBV and lower lipid levels was less consistent compared to HCV. Because of the well-established relationship between HAART and cardiovascular disease, study investigators recommend that viral hepatitis status be included as a variable in studies of cardiovascular disease among PHAs, including studies of the long-term effect of HIV/HCV co-infection on the risk of developing cardiovascular disease.

Where can I find the full-length publication of this study?

This study was published in HIV Medicine in 2011. The full text version is available at:

<http://onlinelibrary.wiley.com/doi/10.1111/j.1468-1293.2010.00897.x/abstract>

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The **Ontario HIV Treatment Network Cohort Study (OCS)** is an ongoing research study that collects clinical, social and behavioural information about people living with HIV (PHA) in Ontario. Participation in the study is voluntary, and all personally identifying information of study participants is removed to ensure confidentiality. The OCS was established to improve our understanding of HIV and to inform HIV prevention, care and treatment strategies for people living with HIV and groups at increased risk of HIV infection. For more information about the OCS, please contact the OCS Research Coordinator, Brooke Ellis at: bellis@ohsn.on.ca.