

PHACS Adolescent Master Protocol
Participant Summary

Title: Biomarkers of Vascular Dysfunction in HIV-Infected Children with and Without Hyperlipidemia

Authors: Tracie Miller, Denise Jacobson, Armando Mendez, Rohan Hazra, Mitchell Geffner, George Siberry, William Borkowsky, Kunjal Patel, Elizabeth McFarland and Russell Van Dyke, for the PHACS Team.

Study Description: Some children with HIV have abnormal amounts of fats in their blood. These fats are called lipids. Cholesterol is a well-known lipid. Too much cholesterol can damage blood vessels. Damaged blood vessels can cause heart or blood flow problems. Over time, this can lead to heart attack or stroke. Proteins in the blood can tell us something about the health of blood vessels. Higher levels of these proteins have been linked with blood vessel damage. We compared the levels of these proteins between children with and without HIV.

Study Population: We studied lipid levels in 262 children with HIV in AMP. From them, we took 50 children with higher than normal lipid levels and 50 children with normal lipid levels. We also looked at 55 healthy children without HIV from another study. We compared the level of each blood vessel protein across the three groups.

Results: The average age of children with HIV was 12 years old. Half were boys and half were girls. Most children were Non-Hispanic Black. Almost half of the 262 HIV-infected children had abnormal lipid levels. The children with abnormal lipids were very similar to the children with normal lipids. However, more children with abnormal lipids were taking a protease inhibitor.

We compared the level of blood vessel proteins in the three groups. (These are the proteins associated with blood vessel damage). The proteins were similar between the children with HIV with abnormal lipids and the children with HIV with normal lipids. However, for 2 types of blood vessel proteins, the children with HIV had higher levels than the children without HIV. These 2 types of proteins are ones that could lead to blood clots and damage the lining of blood vessels.

Conclusions: HIV-infected children with and without abnormal lipids show greater levels of proteins associated with blood vessel damage than HIV-negative children. These changes may tell us that children with HIV are at risk for developing damaged blood vessels over time. This damage could lead to problems with their heart or blood flow. This information will help develop treatments to prevent more damage to the blood vessels.

Support: This study was supported by NICHD with co-funding from NHLBI, NIAID, NIDA, NIMH, and NIDCD.