



## Ethnicity and Gender Differences in Lipodystrophy of HIV-positive Individuals taking Antiretroviral Therapy in Ontario, Canada

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### *What research question is addressed by 'Ethnicity and Gender Differences in Lipodystrophy of HIV-Positive Individuals Taking Antiretroviral Therapy (ART) in Ontario, Canada'?*

The objective of this study was to measure ethnicity and gender differences in the prevalence, type and severity of lipodystrophy, or changes in body fat distribution, caused by the use of antiretroviral treatment (ART) among HIV-positive patients enrolled in the OHTN Cohort Study (OCS).

### *What was the study conclusion?*

The study found high rates of lipodystrophy among participants (58%) and significant ethnic and gender differences in the prevalence and types of body fat changes (e.g., lipoatrophy: peripheral fat loss, especially in the legs, arms, buttocks, and face; versus lipohypertrophy: central fat accumulation, especially in the belly, breasts, and back of neck). Black women were most vulnerable to developing lipodystrophy and overall central lipohypertrophy, while white patients, particularly males, were predisposed to lipoatrophy and abdominal lipohypertrophy. Gender comparisons indicated a predisposition of males towards peripheral lipoatrophy, whereas females were more at risk of developing central lipohypertrophy (especially of the abdomen and breasts).

### *Why is this question important?*

People living with HIV (PHAs) who have lipodystrophy are more likely to experience emotional distress, forced disclosure of HIV status, and decreased treatment adherence. It is also one of the most feared complications of HIV treatment. Despite this, relatively little is known about the role of ethnicity or gender in the prevalence, location and severity of ART-associated lipodystrophy. Understanding the role of gender and ethnicity in the development of lipodystrophy could help guide clinical decision-making in which ARVs to use with specific populations.

### *How was the study conducted?*

The OCS extended questionnaire, which collects data on adverse events, including lipodystrophy, was administered to 778 study participants (659 men, 199 women; 517 whites, 121 blacks and 140 patients of other ethnicities). Clinical data (CD4 counts and viral load) were collected from provincial laboratory databases, chart abstractions and electronic medical records up to May 2009.



### ***What were the main results of the study?***

Overall, 58% of the 778 study participants had lipodystrophy (41% had lipoatrophy, while 31% had lipohypertrophy). There was no difference between black, white and other participants regarding the presence of lipodystrophy or central lipohypertrophy or the severity of central lipohypertrophy. White participants were more likely to experience peripheral lipoatrophy (45%) than black participants (30%) or others (36%). Of those who did experience peripheral lipoatrophy, white and other participants reported a greater severity than black participants.

Males and females did not differ in the prevalence of overall lipodystrophy, but males were more likely to experience peripheral lipoatrophy (43% vs 30%), while females were more likely to experience central lipohypertrophy (47% vs 28%). After adjusting for length of time on ART, black women emerged as the group most vulnerable to lipodystrophy, which is consistent with previous study findings. The finding that ART-associated peripheral lipoatrophy is more common in white patients is also consistent with available literature.

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

The results of the study confirm that ethnicity and gender are important factors that contribute to the development and manifestations of ART-associated lipoatrophy among PHAs. Patients who suffer from lipodystrophy are also prone to other metabolic toxicities including impaired glucose tolerance, insulin resistance and dyslipidaemia, leading to increased risk of diabetes and cardiovascular disease. It is increasingly important to consider the implications of ethnic and gender variations in all ART-associated side effects to help guide clinical decision-making regarding specific ARVs. Study results regarding the vulnerability of black women to lipodystrophy (especially central lipohypertrophy) have particular implications for the rollout of ART in sub-Saharan Africa, where women are disproportionately affected by the HIV epidemic.

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

This study was published in HIV Clinical Trials. The full text version is available at:

<http://www.ncbi.nlm.nih.gov/pubmed/21498152>.

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](mailto:bellis@ohsn.on.ca).