

# GH DEFICIENCY IN HIV-INFECTED PATIENTS COMPARED TO HYPOPITUITARY PATIENTS

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## INTRODUCTION

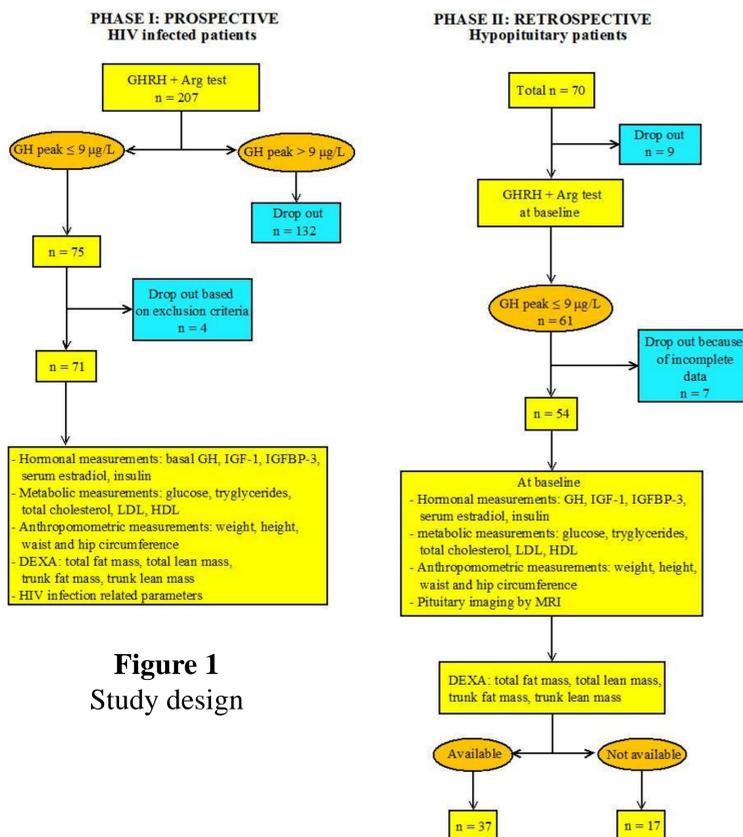
Growth Hormone deficiency (GHD) is frequent in patients with Human Immunodeficiency Virus 1 (HIV-1), undergoing Highly Active Antiretroviral Therapy. GHD seems to depend on HIV-related lipodystrophy and to be less frequent in women. The comparison between hypopituitary patients and HIV-infected subjects could be of help in characterizing GHD aspects, particularly in HIV-infected ones.

## AIM OF THE STUDY

The aim of this study is to compare the GH/IGF-1 axis status in patients with HIV infection and lipodystrophy and in patients with documented hypopituitarism. In addition, we aim to determine and compare the possible effects of body composition and gender on GH secretion in order to better understand the underlying mechanisms of GHD in these two cohorts of patients.

## METHODS

The study design is represented in Figure 1. We compared 71 HIV-infected patients prospectively enrolled, with 37 hypopituitary subjects retrospectively selected reviewing record charts. We evaluated basal serum GH, IGF-1, GH peak and area under the curve (AUC) after standard GH Releasing Hormone+Arginine test; BMI, waist and hip circumference and body composition by dual-energy X-ray absorptiometry (DEXA). Data were analyzed by nonparametric Mann-Whitney test.

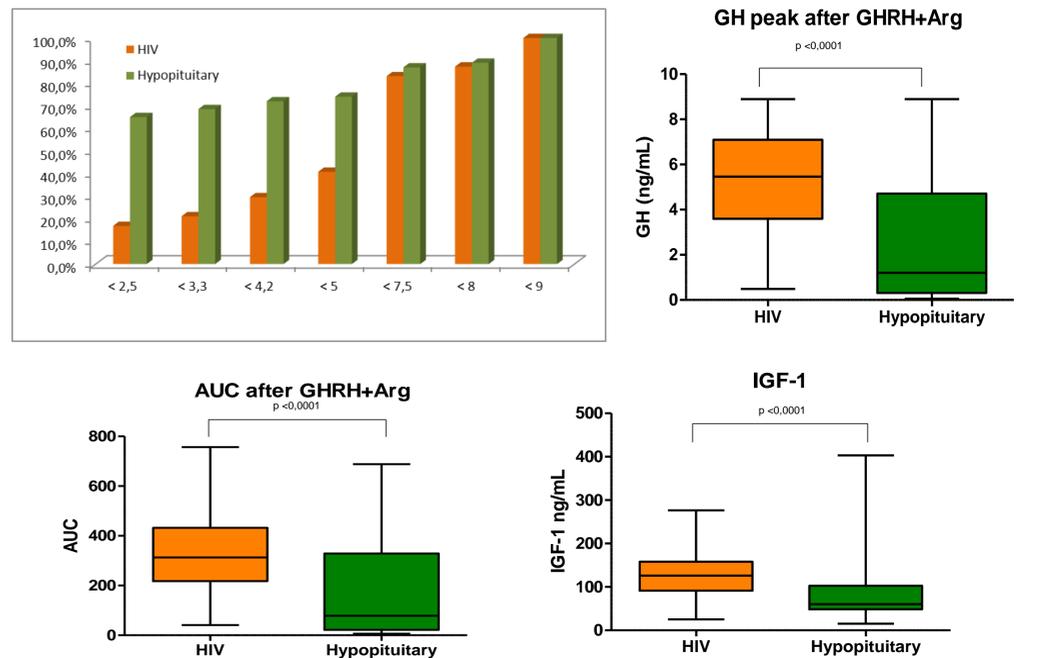


**Figure 1**  
Study design

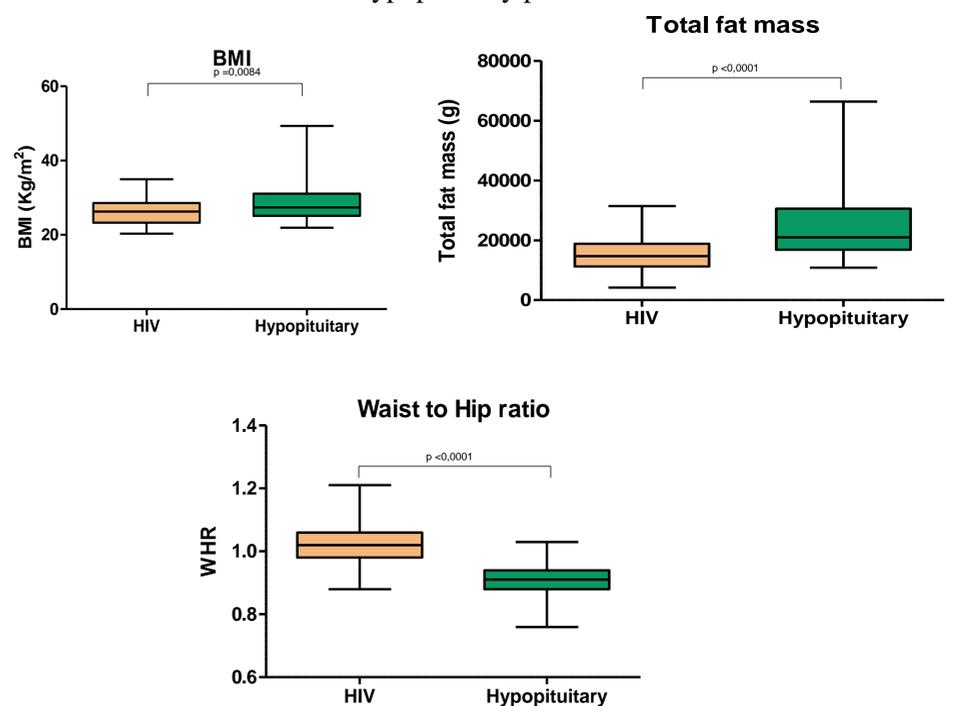
## RESULTS

HIV-infected patients had higher GH peak, AUC, and IGF-1 ( $p < 0.0001$ ) (Figure 2). BMI ( $p = 0.0084$ ), total fat mass ( $p < 0.0001$ ) were higher in hypopituitary patients; waist to hip ratio (WHR) was higher in HIV-infected patients ( $p < 0.0001$ ) (Figure 3). GH peak was lower in hypopituitary men than women ( $p = 0.001$ ). Men showed higher WHR ( $p = 0.0082$ ), total ( $p = 0.0002$ ) and trunk lean mass ( $p = 0.0008$ ), while women had higher total ( $p = 0.0017$ ) and trunk fat mass ( $p = 0.0176$ ). No gender differences were found in HIV-infected patients. GH peak, AUC, and IGF-1 were higher ( $p < 0.0001$ ) in HIV-infected than hypopituitary men. No difference was found in women.

**Figure 2**  
GH-IGF-1 axis comparison between HIV infected patients and hypopituitary patients



**Figure 3**  
Differences in body composition in patients with GHD and HIV-infection and hypopituitary patients



## CONCLUSIONS

GHD seems to be worse in hypopituitary patients, suggesting that primary pituitary disease affects GH/IGF-1 axis more than HIV-1. Moreover, fat distribution more than fat mass per se seems to affect GH/IGF-1 axis in HIV-infected patients, since they have lower BMI but higher WHR. Furthermore, men seem to have a worse deficit than women, suggesting a possible role of gender in GH/IGF-1 status. These differences could help distinguishing functional from clinical GHD in HIV-infected subjects, and better targeting treatment strategies.

## REFERENCES

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