M.J. SCOLARO, B. AL-FAROUK, T. SPEIGHTS, N. MUURAHAINEN, C. BELL
(2001) **Effects of wasting therapy with recombinant human growth hormone (rhGH) on cardiac ejection fraction in HIV-infected (HIV+) men**, Serono Laboratories, Norwell, MA (USA)

INTRODUCTION

A recent study of 98 HIV-positive patients and 40 HIV-negative controls found that HIV-positive individuals have poorer left ventricular function than HIV-negative controls (International Journal of Cardiology 1998). Specifically, 32 percent of infected individuals demonstrated a depressed left ventricular ejection fraction, the severity of which increased with later stages of infection. In addition, there is expanding evidence that growth hormone exerts positive effects on the heart in both animals and humans, plays a role in the maintenance of a normal cardiac structure, and may be of potential benefit in cardiomyopathy in HIV-negative patients (S.Fazio et al in New England Journal of Medicine 1995, A.Cittadini et al in Journal of American college of Cardiology 1997, Gemberg-Maitlan et al in American Heart Journal 1996, and A.Sartorio et al in Journal of Internal Medicine 1997).

OBJECTIVE

The objective of the current analysis was to evaluate the effects of rhGH for wasting on cardiac function as measured by 2-D echocardiograms in HIV-positive men receiving antiretroviral therapy.

METHODS

A retrospective chart review was conducted in December 1997 in an urban United States private practice. Charts of 18 HIV-positive gay white male outpatients who received open-label therapy with rhGH (Serostim®, Serono Laboratories) for wasting (6mg daily, three to seven days per week) were studied. Data were abstracted for 10 patients who had also received a 2D echocardiogram (ECHO) measuring cardiac ejection fraction (EF) prior to and during therapy with rhGH. Patients' mean age at baseline was 42.9 ± 11.4 years.

RESULTS

Median CD4 cell count was 159 cells/mm3 (range 4 - 424 cells/mm3). Median HIV RNA was 109,308 copies/ml (range 811 – 470,335 cells/ml). All 10 patients received at least 2 antiretroviral agents, and 90% were on triple combination therapy that included a protease inhibitor. Mean duration of rhGH therapy was 276 ± 232 days (range 19 – 722), and dosing for these ten individuals ranged from 6mg three to seven days per week. Nine of 10 patients gained weight (2.9 ± 4.8kg). In addition, no significant adverse events were observed on rhGH therapy.

At baseline, mean ejection fraction by 2-D echocardiogram was 56% (range 33-67%). After rhGH therapy, ejection fraction increased in 90% of patients, and by at least 15% over baseline in 70% of patients. After rhGH therapy, mean ejection fraction increased to 66% (range 55-79%), a statistically significant increase by paired t-test ($p=0.0062$).

CONCLUSION

In this retrospective cohort, rhGH therapy for wasting increased cardiac ejection fraction as measured by 2-D echocardiograms. This is consistent with previous studies in HIV-negative patients, and may contribute to statistically significant improvements in physical performance as measured by treadmill work output in HIV-positive patients receiving rhGH for wasting (M. Schambelan in Annals of Internal Medicine 1996). Clearly, placebo-controlled trials with additional measures of cardiac function are warranted to further clarify the effects of rhGH therapy of cardiac muscle in patients with HIV-associated wasting.