Medical Marijuana In Huntington's Disease: Report of Two Cases

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Chart 1. Results of medical marijuana on mood, cognitive, and motor symptoms in subjects with Huntington Disease

	Subject 1 60 year old man College education One year since HD diagnosis			Subject 2 52 year old man High school education Three years since HD diagnosis		
	On	Off	Change	On	Off	Change
STAI	57	62	-5	49	58	-9
MOCA	27	27	0	25	26	-1
MADRS	34	28	+6	20	30	-10
UHDRS	24	29	-5	19	18	+1

STAI (State-Trait Anxiety Inventory), MOCA (Montreal Cognitive Assessment), MADRS (Montgomery-Åsberg Depression Rating Scale), UHDRS (Unified Huntington's Disease Rating Scale).

Huntington's disease (HD) is an autosomal dominant inherited disorder characterized by chorea or other movement abnormalities, dementia, and a wide spectrum of psychiatric disorders. The treatment of HD is symptomatic and limited.[1] Some HD patients in the Movement Disorders clinic at Butler Hospital revealed that they were using marijuana on a regular basis. We hypothesized that marijuana provided psychological or physical relief of the patient's HD symptoms. Prior studies have used isolated compounds from marijuana and focused on motor symptoms.[2, 3] The results of this study will hopefully direct further research into how marijuana might benefit patients with HD or other neurodegenerative disorders perhaps adding another therapeutic option to a devastating disease.

Patients with HD taking **medical marijuana** (MM) were invited to participate in the study, which was approved by the Butler Hospital IRB. The patients provided written informed consent. The patient was evaluated while taking MM as usual and then was asked to refrain from using marijuana for 48 hours. Subjects were tested when taking the MM and when off the drug. We performed the State-Trait Anxiety Inventory, Montgomery-Åsberg Depression Rating Scale, and Montreal Cognitive Assessment. The Unified Huntington's Disease Rating Scale was used to assess motor function. The subjects' scores on these tests were compared to themselves on and off the drug.

Our study showed that subjects had less anxiety on marijuana (improved five and nine points respectively). Subject two had less depression (ten point improvement) whereas subject one had slightly worse depression, deemed not clinically significant. Subject one had minor improvement in his motor exam (five points) and subject two had insignificant worsening (one point). There was no change in cognitive performance (Table 1) for either subject. There were no adverse events while on or off marijuana.

Pathologic studies of HD show selective loss of CB1 (cannabinoid receptor).[4] CB1 is found in the basal ganglia, cerebellum, dorsal primary afferent spinal-cord region and hippocampus. Marijuana is from the cannabis plant and it may contain over 60 cannabinoid compounds. The role of each of these compounds in the behavioral response to the drug is unknown. However, THC (tetrahydrocannabinol) is the main psychoactive compound, while cannabidiol and cannabinol are the main non-psychoactive components. In a rat model it was found that stimulation of CB1 slows experimental HD.[4] In humans, two studies evaluated the ability of cannabidiol to reduce chorea in HD. One study showed mild improvement using the tongue protrusion test and chorea severity evaluation scale.[2] The second study evaluated 15 patients in a placebo-controlled, double-blind, randomized, cross-over design and found no significant effect on chorea severity.[3] Neither study found adverse reactions to the medication. In our study both subjects reported that marijuana helped them with anxiety and depression, allowing them to sleep as well as to gain motivation.

Overall our study supports the hypothesis that marijuana improved anxiety in these two subjects; however this conclusion is limited because of a small sample size, open label testing and the possibility of a withdrawal effect in patients who had been taking the drug on a chronic basis.

References

1. Fahn S, Jankovic J. editors. *Principles and Practice of Movement Disorders*. Philadelphia: Elsevier, 2007. pp 369–85.
2. Sandyk R, Consroe P, Stern L, Snider S. Effects of Cannabidiol in Huntington's Disease. *Neurology*. 1986;36(suppl 1):342.
3. Consroe P, Laguna J, Allender J, et al. Controlled clinical trial of cannabidiol in Huntington's disease. *Pharmacol Biochem Behav*. 1991;40:701–8.
4. Baker D, Pryce G, Giovannoni G, Thompson, A. The therapeutic potential of cannabis. *Lancet Neurol*. 2003;2:261–98.

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Karl Meisel, MD, and/or his spouse/significant other have no financial interests to disclose.

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Cardiovascular Health of HIV-infected African-American Women at the Miriam Hospital Immunology Center in Providence, RI

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Introduction

Cardiovascular Disease (CVD), which includes **coronary heart disease (CHD)** and stroke, is the leading cause of death for women in the United States. CVD is a particularly important problem among minority women because of increased prevalence, morbidity and mortality. The prevalence of CVD in African American females is 44.7 percent, compared to 32.4 percent in Caucasian females.[1] The morbidity and mortality due to CVD is substantially higher in African American women than in Caucasian women.[2] CVD is also a growing concern among **human immunodeficiency virus (HIV)** infected individuals.[3] CVD in HIV-infected patients has been associated with traditional CVD risk factors, such as hypertension, diabetes, smoking and dyslipidemia.[3] Age, genetics and family history are important non-modifiable cardiovascular risk factors. In addition, both HIV and antiretroviral therapy have direct and indirect effects on CVD risk.

Of the 1,220 new HIV cases diagnosed and reported to the Rhode Island Department of Health from January 1, 2000 – December 31, 2008; males accounted for 874 (72%) of the cases and females accounted for 346 (28%).[4] Although, African American women comprise 5% of the Rhode Island population, they account for the majority of HIV cases among women(39%), followed by Hispanic (29%) and Caucasian (27%).[4]

We performed this study to determine the cardiovascular health among HIV-infected African American women and to examine how well our HIV care providers screen and manage cardiovascular risk factors. In addition to reviewing screening and management practices, we wanted to determine if **American Diabetes Association (ADA)**, **American Heart Association (AHA)**, and **National Cholesterol Education Program (NCEP)** goals (for lipid level, hemoglobin A1c, blood pressure and smoking) were being met for HIV-infected African American women.

Methods

This was a cross sectional study conducted at the Miriam Immunology Center in Providence, the largest care provider for HIV-infected individuals in Rhode Island. The Institutional Review Board of the Miriam Hospital approved the study. The Miriam Immunology Center provided care to approximately 1,200 HIV-infected individuals in Rhode Island in 2008. African American women were defined as any non-Hispanic woman of African descent.

African American HIV-infected women to be included in this study were identified from the clinic electronic database and were included if they meet the following criteria: active patient at the clinic, defined as having seen an HIV care provider at least once during the 2008 calendar year, and at least 20 years of age, as this is the age that cardiovascular risk assessments should begin. Data were retrieved through electronic and written records.

In order to determine the overall cardiovascular health of HIV-infected African American women in the Miriam Immunology Center, we calculated a ten year risk for CVD, CHD, stroke, and **myocardial infarction (MI)** using **Framingham risk score (FRS)** for each patient. The Framingham score can be used as a surrogate marker of cardiovascular health and was developed as an instrument or as a risk assessment tool for determining risk of future cardiovascular vascular disease and cardiovascular events, myocardial infarction and coronary death. Although, the Framingham risk score has been noted to have several limitations in its applicability to women, African Americans, and HIV-infected individuals; D:A:D study investigators found that use of the Framingham risk score in HIV infected individuals may provide a reasonable approximation and is the best starting point available.[5]

For each modifiable cardiovascular risk factor we used established guidelines from the ADA/AHA/NCEP to assess appropriate rates of screening. For example, family history of cardiovascular disease should be regularly updated. Smoking status, diet, alcohol intake, and physical activity should be assessed at every routine evaluation. Patients who smoked >1 cigarette a day, were classified as smokers. As published by Aberg et al. in the 2009 Primary Care Guidelines for the management of HIV-infected persons; blood pressure, body mass index, and pulse should be recorded at each visit.[6] Additionally, fasting serum lipoprotein profile (or total and HDL cholesterol if fasting is unavailable) and fasting blood glucose should be measured according to patient's risk for