



Audio Computer-Assisted Self-Interview (ACASI) Improves HIV-1 Viral Suppression in African American Women

Results from a Randomized, Controlled Study

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ABSTRACT

Background: Audio computer-assisted self-interview (ACASI), an information technology (IT) tool, has been shown to provide more valid data than face-to-face interviews on sensitive behaviors, such as medication adherence and illicit drug use. We conducted a randomized, controlled study in our inner-city clinic population to evaluate whether immediate ACASI feedback reports given to clinicians would improve HIV-1 RNA viral suppression in patients starting highly active antiretroviral therapy (HAART).

Methods: Patients starting HAART were randomized to have summary reports of ACASI responses relayed to clinicians just prior to all primary care visits (feedback-FB) or remain confidential (control-C). Randomization was stratified by treatment history (naïve vs. experienced). ACASIs were performed over a 12 month period at all primary care visits just prior to the patient seeing their provider and included questions regarding adherence to antiretroviral drugs, presence of depression, illicit drug use, alcohol use, and participation in drug or alcohol treatment programs. Suppression of HIV RNA to ≤ 50 copies/mL was assessed at 6 and 12 months. All analyses were performed as intent-to-treat (ITT).

Results: Between April 1, 2003 and May 30, 2005, 195 patients (43% female, 87% African American, median age 43 years) enrolled; 27% were naïve to therapy. Baseline HIV RNA was 68,066 copies/mL and 52,936 copies/mL, and baseline CD4 count was 177 cells/mm³ and 165 cells/mm³ for the FB and C groups, respectively (both $p > 0.15$). Overall, there was no difference between groups (FB 45% vs 38% C; $p = 0.32$) in HIV RNA suppression with no difference between naïve and non-naïve. However, in a sub-group analysis, African American women were more likely to suppress HIV RNA to < 50 copies/mL at 6 months (FB 49% vs C 26%; Odds Ratio=2.7; 95% CI 1.03-7.34) and 12 months (FB 36% vs C 28%; OR=1.40; 95% CI 0.52-3.74).

Conclusions: Our randomized clinical trial suggests that ACASI summary reports may provide a tool to enhance discussions of adherence to HAART and barriers associated with adherence to HAART between patients and their primary care providers. In our inner-city clinic population, use of ACASI did not improve virologic outcomes overall, however for African American women, use of ACASI resulted in an increased likelihood of obtaining an undetectable (< 50 copies/mL) HIV RNA 6 months after initiation of therapy.

Background

Although patient self-report consistently over-estimates adherence, it is strongly correlated with HIV-1 viral load and is the most practical clinical approach to evaluate adherence. Computer-assisted self-interview (CASI) is an information technology (IT) used in clinical research to obtain information that is sensitive in nature, and the CASI has been shown to provide more valid responses than face-to-face interview regarding medication adherence and behaviors that might interfere with adherence such as illicit drug use!

The Johns Hopkins Program in HIV Outcomes Research developed an audio-CASI (ACASI) in 1998 and conducted over 2000 ACASIs among our HIV clinical cohort prior to initiation of our current study.

Results from our provider and patient surveys showed that ACASI was widely accepted by both patients and clinicians. Both groups felt that ACASI had a positive effect on their communication with each other. Clinicians viewed ACASI feedback reports as a helpful tool to improve patient care by determining patient self-reported adherence to HAART.^{2,3}

Objective

We assessed if ACASI in routine clinical practice improves HIV clinical outcomes such as viral load suppression and CD4+ cell count increases over a 12 month period.

Methods

- Randomized, controlled clinical trial
- Planned enrollment: 180 subjects initiating HAART
- HAART defined according to DHHS-Kaiser 2002 Guidelines for Antiretroviral Therapy (HAART) in Adults
- 12 month intervention
- 50% of subjects randomized to no clinician feedback of ACASI (control)
- 50% of subjects randomized to clinician feedback of ACASI at the time of clinical care visit (feedback)
- Randomization stratified by HAART history (naïve vs. experienced)
- ACASI questions: adherence to antiretroviral drugs, presence of depression, illicit drug use, alcohol use, and participation in drug or alcohol treatment programs
- HIV-1 RNA and CD4+ cell count at enrollment and months 6 and 12

Results

Table 1. Patient Characteristics (n = 195)

Characteristic at CATS Enrollment	Number	%
Sex - Male	112	57
Age (years) - 24 – 34	25	13
35 – 44	91	47
45 – 54	65	33
55 – 74	14	7
	Mean age (years) = 43	
	Median age (years) = 43	
	Range (years) = 24 - 66	
Race/Ethnicity - Black or African American	169	87
White	22	11
Hispanic/Latino/a	2	1
Asian/Pacific Islander	2	1
Risk Factor - MSM	27	14
HET	66	34
IDU	48	24
Other	9	5
Multiple risk	45	23
Antiretroviral Therapy Status - Experienced	142	73

IDU = 45%

Table 2. Baseline HIV-1 RNA and CD4+ Cell Counts

	All Patients N = 195	Women N = 74
HIV-1 RNA (copies/mL)	Mean	Mean
Feedback	68066	187701
Control	52936	131205
CD4+ Cell Count (cells/mm ³)	Mean	Mean
Feedback	177	181
Control	165	193

Table 3. ACASI Performance

Total # of ACASIs Performed for <u>enrolled</u> subjects (n=195)	1148
# of ACASIs Performed for <u>completed</u> subjects (n=161)	1036
Mean # per patient	6.4
Median # per patient	6
Range	2-16

Table 4. Suppression of HIV-1 RNA

	% HIV-1 RNA < 50 copies/mL	P value	Odds Ratio	95% Confidence Interval
All Patients (n = 195)				
Feedback	45	0.32	1.4	0.77 – 2.42
Control	38			
African American Women at 6 months (n = 74)				
Feedback	49	0.04	2.7	1.03 – 7.34
Control	26			
African American Women at 12 months (n = 74)				
Feedback	36	0.50	1.4	0.52 – 3.74
Control	28			

- No difference in CD4+ cell counts over time (data not shown)
- No difference between naïve and experienced patients over time (data not shown)

Conclusions

- ACASI summary reports may provide a tool to enhance discussions of adherence to HAART and barriers associated with adherence to HAART between patients and their primary care providers.
- In our inner-city clinic population, use of ACASI did not improve virologic outcomes overall
- Use of ACASI in African American women however, resulted an increased likelihood of obtaining an undetectable (< 50 copies/mL) HIV RNA 6 months after initiation of therapy.
- The benefit in African American women may be due to chance since we did not specify a priori that we would assess this group.

References

1. Bangsberg et al. AIDS Care 2002;14:3-15)
2. Sabundayo et al. APHA Philadelphia, PA. December 2005
3. Herwehe et al. APHA Boston, MA. November 2006