Validity of Self-reported CD4 Cell Count and HIV Viral Load among HIV-infected Patients in Houston/Harris County

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Background

The CD4 T-cell count and plasma HIV RNA (viral load) are two surrogate markers that are routinely used to determine indications for treatment and monitoring the efficacy of therapy in HIV-infected persons.

The most recent information on these two biomarkers is the strongest predictor of subsequent disease progression and survival among infected persons.

The objective of this evaluation was to determine the level of validity of self-reported CD4 cell count and HIV viral load among HIV-infected patients compared to the measurements recorded in the medical record.

Material and Methods

Pilot data collected between December 2005 and March 2006 were used for this study.

Data was based on a population-based clinical and community outreach cohort study project.

In-person interviews and medical record abstractions were conducted for 46 patients (18 years and over), infected with HIV and receiving outpatient care in Houston/Harris County.

Most recent CD4 count and viral load of patients during the last 12 months obtained from both interviews and medical record abstractions (MRAs) were used (Table 1).

The CD4 and viral loads from MRAs during the same surveillance period were classified according to the options used in the interview instrument.

The validity and measure of agreement between self-reported and documented information from patients' medical records were determined using Kappa Statistics.

The overall measure of agreement between self-reported and medical record abstraction record gave a significant (P<0.001) Kappa value of 0.48 for Viral load.

A non-significant (P=0.05) and poor Kappa value of 0.043 was observed for CD4 counts.

Fair to moderate agreement levels were obtained when the biomarkers were evaluated against some demographics and behavioral characteristics.

Limitations

Small sample size (N=46) may not be representative of the population. Improved sample size may reveal a different level of agreement between the two sources of data within the characteristics.

The design assumed MRA data was accurate (Gold Standards).

Interview responses consisted of categorized responses while MRA data were abstraction of actual value.

MRA HIV VL < less than 400 copies/mL was categorized as undetectable although lower undetectable levels exist.

Conclusion

The results indicate that some significant measure of agreements exist between Viral Load obtained from interviews and medical record abstraction data.

Choice of data source, medical records or self-reports, will, in many instances provide significantly different results and it is likely that this may also be true for other variables of interest to researchers.

Thus, in the case where no gold standards are available, research needs to consider carefully the implications of choice of data source on their results.

These results can serve as a useful guide to researchers contemplating the use of surveys as an alternative to medical record abstraction to ascertain treatment for HIV patient outcomes.

Findings of this pilot study supports other validation studies with other diseases in which low to moderate agreement between the two data sources were found, depending on the data being collected and the setting (1–3).

References


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Table 1: Demographic Characteristics of Study Population (N=46)

Table 2: Measure of agreement between CD4 count and HIV viral load (VL) obtained through interviews and medical records abstractions by demographic characteristics

Table 3: Measure of agreement between CD4 count and HIV viral load (VL) obtained through interviews and medical records abstractions by primary treatment setting (PST) and insurance status

* Kappa values that are not significant and are too small to be interpreted by the researcher or clinician imply that the data are not useful to the patient and that the data are not useful to the clinician.