Statistical comments on "Antiretroviral changes during the first year of therapy"

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Dear editor,

We read with great interest a recent article by Bandeira et al.[1] entitled "Antiretroviral changes during the first year of therapy." In this study, the authors investigated the first year of highly active antiretroviral therapy (HAART) in patients from a reference center on HIV/AIDS management in Fortaleza. They evaluated CD4 T lymphocyte (LTCD4) count and viral load (VL) over the course of the treatment (4 time-points of measurement including before treatment, 2-4 months, 5-8 months and 9-12 months). As stated in the methods section and chart 1 of the article, the authors used Student t-test (independent t-test) and Mann-Whitney test for comparison of LTCD4 count and VL between different time-points of measurement. Indeed, the authors investigated levels of the numerical variables in one sample of the patients in different times and assumed them as independent measurements. Since they used only one sample of the patients and measured numerical variables in them during different time-points, their measurement are dependent. Student t-test and Mann-Whitney test are used to compare the differences between the means of two independent (unrelated) groups, but the measurements of the mentioned study are not independent.[2-6] Therefore, after assessment of the normal distribution of the variables, due to dependence of measurements, they must use dependent t-test (paired t test) or Wilcoxon signed rank test for comparisons between different time-points of measurement.[4,7-10]

Taken together, we believe that most of the statistical tests used in this study (including Student t-test and Mann-Whitney test) are inappropriate, and the authors' valuable study could be better used as citable experimental evidence if analyzed with appropriate statistical tests (including dependent t-test or Wilcoxon signed rank test).

Conflict of interest

The authors declare that they have no conflict of interest.

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