



The combination of antiretroviral and *Phyllanthus niruri* extract is more effective to increase CD4 cells count on HIV patients: a pilot study

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Abstract : Some in vitro researches reported that application of *Phyllanthus niruri* extract exhibited HIV reverse transcriptase enzyme inhibitor and immunostimulator effects. The immunostimulator activity, especially the effect on absolute CD4 cells count was determined in HIV patients from a teaching hospital in Surabaya, Indonesia and a teaching hospital in Sidoarjo, East Java, Indonesia. In a quasi-experimental trial with a pretest-posttest control group design, a combination of antiretroviral therapy (ART) and capsules of *Phyllanthus niruri* extract (contained 50 mg dried powdered extracts of *P. niruri*) were administered to 15 HIV patients in the intervention group, while ART only was administered to 13 HIV patients in the control group. After six months of therapy, results from paired t-test revealed the treatment group achieved higher absolute CD4 cell count than the control group ($p < 0.001$). A multivariate analysis with the generalized linear models (GLMs) showed that being in the intervention group significantly increased the probability of having higher absolute CD4 cells count by 62.365 cells/ μL after six months of therapy (95% CI, 35.732 - 88.998) compared to the absolute CD4 cells count of study participants in the control group, adjusted for the absolute CD4 cells count before therapy, age, stage of AIDS and adherence to therapy.

Keywords : HIV, *Phyllanthus niruri* extract, antiretroviral therapy, absolute CD4 cells count.