Association between CD4 Count Baseline and Immunological Failure among Care Support and Treatment (CST) Clients in Yayasan Kerthi Praja, Bali

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Background/Objective
Bali Province was ranked third on HIV/AIDS prevalence in Indonesia in 2014. After the implementation of strategic use of ARV (SUFA), the number of people living with HIV/AIDS on anti-retroviral therapy(ART) is increasing. Long term treatment has been identified as a major contributor for treatment failure. However until currently, very limited study has been conducted to investigate factors associated to treatment failure. This study was aimed to explore association between CD4 baseline prior ART and the occurrence of immunological failure (IF).

Method
A cross-sectional study was conducted in Denpasar City. A total of 549 CST clients visiting Yayasan Kerthi Praja, Denpasar from 2002 to 2013 were initially included in this study. Only 205 clients were eligible for analysis. Data were collected by extracting medical record and were analyzed using univariate, bivariate (chi-square test), and multivariate (logistic regression).

Result
The majority of clients were male (61%) with the average age of 31.56±7.60. The prevalence of IF was 13.66% and there is a positive correlation between IF and CD4 count baseline prior ART ($p<0.0001$). The prevalence of IF was significantly higher among clients with CD4 count baseline ≤100 cell/mm3 (23.20%) than clients with CD4 count baseline >100 cell/mm3 (5.50%).This study also found positive association between HIV transmission risk, gender, the presence of lay counselor, opportunistic infection prior ART, and anemia status with IF. Logistic regression analysis showed that CD4 count baseline ≤100 cell/mm3 as the major contributor for immunological failure (OR=4.16; 95%CI:1.45-11.94).

Conclusion
Findings from this study can be used to inform the implementation of SUFA strategy in Bali Province. In order to reduce the risk of treatment failure, SUFA strategy should take into consideration the level of CD4 count baseline and the presence of opportunistic infection prior ART initiation.