

Simple Methods on Supporting ARV Therapy Services

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Early antiretroviral (ARV) therapy by using zidovudine (AZT) has been initiated in Indonesia since 1987, which further followed by duotherapy, i.e. combining the AZT and lamivudine (3TC). Either monotherapy or duotherapy treatments were lead to resistance against ARV. In 1996, triple drugs therapy was identified effective in HIV management. Combination of three or more antiretroviral therapy is better either on clinical, immunological, virology, or epidemiology aspects. Clinically, the mortality rate and hospitalization rate can be significantly decreased. In Jakarta, Indah Mahdi found that there was a drastic decrease of mortality rate in 3 month period following ARV treatment of HIV-infected patients. Although the mortality number was still high in the first three month, i.e. approximately 30%¹ but then it was extremely decreased when the patient got survived. The mortality at first three month was mostly caused by severe opportunistic infection which had occurred before ARV treatment commenced. Most HIV case was diagnosed at late stadium with low CD4+ lymphocyte count, which became the most difficult problem.

Yuniastuti (2005) reported that 42.6% of treated HIV/AIDS cases in RSCM have less than 50 cells/mL² of absolute CD4+ count. Indah Mahdi also reported that the mortality risk of a group with CD4+ count < 50 cells/mL² was 3.39 lower than a group of higher CD4+ count.¹

Therefore, an early diagnosis of HIV is required to decrease the mortality rate of HIV/AIDS cases by providing affordable and well-distributed services of *Voluntary Testing and Counseling* (VCT).

In conducting the ARV therapy, WHO guidelines recommend CD4+ count as a criteria in initiating and monitoring improvement of ARV therapy.³ The CD4+ count has been established since 1986 by Zubairi

Djoerban at Ciptomangunkusumo Hospital. At that time, it was performed by immunofluorescent microscope. Afterward, another CD4+ count by a *flowcytometer* was lately developed. Using *flowcytometer*, the count was easier and more reliable because it was not interfered by intra observer subjectivity; thus, it subsequently becomes more popular.

Although the CD4+ count by *flowcytometry* is easier, but the cost is expensive and only provided in referral hospital. However, CD4+ count is also expensive, i.e. it costs about IDR 120,000. Therefore, it is necessary to find another alternative method, which is simpler and more reliable to substitute the CD4+ count, especially to determine the indication of ARV therapy. A report by Lydia found that in AIDS cases, the CD4+ count of 200 cells/mL was more less similar with total lymphocyte of 1100.⁴ Similar finding was also reported by Suryamin, that performed a correlation between total lymphocyte and CD4+ count in HIV-infected patients.⁵ The WHO guidelines in 2003 for its program in developing countries has recommended CD4+ count less than 200 cells/mL or total lymphocyte count less than 1200 to start an initial therapy for asymptomatic patient.³ However, as a further progress, the correlation is frequently inaccurate, particularly in monitoring improvement of the ARV therapy.^{6,7} In contrast, other studies still indicate a good correlation of it.^{8,9} Obviously, we need another alternative method to improve specificity and sensitivity of such examination.

Spacek, et al tried to add several standard examination to improve specificity and sensitivity of total lymphocyte count as a predictor for CD4+ lymphocyte count, and found that by adding hemoglobin examination, we may provide higher sensitivity for total lymphocyte count and may decrease the false negative result.¹⁰ A study in Indonesia by Wilhan, et al with smaller number of samples as demonstrated this study, has also supported the study result by Spacek, et al.¹¹ A study to evaluate the correlation between total lymphocyte count or other parameters and CD4+ count should be

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conducted with adequate number of subjects. Simple methods in providing approximate CD4+ count should be further developed since it will bring benefit for management of HIV/AIDS in facility-limited settings. However, the study should be conducted by a good procedure in providing adequate result for other colleagues in other areas.

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