Correlation of haematologic parameter and the degree of leukoreduction in hyperleukocytosis leukemia underwent leukapheresis

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Abstract

Hyperleukocytosis is defined as total leukemic blood cell count greater than $50x10^9$ L or $100x10^9$ L. Critical hyperleukocytosis can cause leukostasis, a poorly understood and life-threatening complication. The incidence of hyperleukocytosis and leukostasis differs among various types of leukemia. Leukapheresis is known to be a rapid and safe procedure to reduce leucocyte (*leukoreduction*) and early mortality in patients with hyperleukocytosis leukemia. The aim of our study is to investigate the correlation of hematologic parameter before leukapheresis to the degree of leukoreduction. We retrospectively analyzed 42 patients with hyperleukocytosis leukemia with and without clinical sign of leukostasis. Paired t-test showed that there were significant leukoreduction ($p<0.001$), decrease of neutrophils (<0.001) and also platelets ($p<0.001$) after leukapheresis. The result of bivariant analysis indicated that all haematologic parameters before leukapheresis, hemoglobin ($r=0.364$; $p=0.009$), leukocyte ($r=-0.397$; $p=0.005$), platelets ($r=-0.385$; $p=0.006$), haematocrit ($r=0.512$; <0.001), lymphocyte ($r=0.408$; $p=0.004$) and neutrophil ($r=-0.300$; $p=0.027$) correlate with leukocyte reduction. This result was similar to Jin Y-study, who found that only leukocyte and haematocrit had an influence on collection efficiencies (rate of leukocyte depletion). In conclusion leukapheresis is effective in reducing leucocyte and neutrophil, but also platelets. Hematological parameters before leukapheresis significantly correlate with the degree of leukoreduction.

Biography

Shinta Oktya Wardhani is an MD Trainee in Hematology and Medical Oncology at Hasan Sadikin Hospital, Padjadjaran University and has special interest in apheresis and other hematology and oncology research with a 3rd Best Poster Presentation Award from Indonesian Society of Medical Oncology in ROICAM 6 Conference in Jakarta on 23-26 August 2018 and 2nd Best Oral Presentation in Regional Conference of Internal Medicine (Trigonum SUDEMA) in Malang on July 2018. She also become an author and co-author of some publication including “correlation between soluble urokinase plasminogen activator receptor with CD-4 T lymphocyte and WHO clinical staging of HIV infection”.

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