ABSTRAK

EFFECTIVENESS OF LEUCOVORIN RESCUE AGAINST FOLATE SERUM LEVELS AFTER HIGH DOSAGE METOTREKSAT IN CHILDREN WITH ALL (ACUTE LIMFOBLASTIC LEUKEMIA) 
(Study at Pediatric Department Dr. Soetomo Teaching Hospital Surabaya)

Background: ALL patients received high-dose methotrexate in the consolidation phase. Methotrexate is a folate antagonist, which can cause folate deficiency. Folate deficiency has the potential agent to cause genome instability of cells, thereby reducing tissue regenerative ability and decreasing DNA repair ability.

Objective: to analyze folate serum levels in ALL patients in the consolidation phase before hydration, after administration of high-dose methotrexate (HD MTX) and after leucovorin rescue.

Methods: This prospective longitudinal study was approved by the Ethics Committee of Dr. Soetomo Teaching Hospital Surabaya. Data was collected from March to April 2019. Serum folate levels were measured prehydration, after administration of HD MTX (after 36 hour prehydration) and after leucovorin rescue (after 90 hour prehydration). This study protocol was approved by the Ethics Committee of Dr. Soetomo Teaching Hospital Surabaya. The parents of the patients signed informed consents for this study. The collected data were analyzed using paired samples t test to compare the parametric data groups and paired samples correlation to correlate three quantitative variables.

Result: There were 13 patients from 19 cycles of the consolidation phase that met the inclusion criteria where 69.2% were boys. Range of folate serum levels prehydration were 0.990-8.573 (ng/mL). Range of serum folate levels after HD MTX 0.818-7.559 (ng/mL). Range of folate Serum levels after the fifth dose of leucovorin were 0.633-8.329 (ng/mL). It was found that there was no significant difference between range of folate Serum levels in each sampling point 0.942; 0.248 dan 0.190; p> 0.05).

Conclusion: Based on this study it can be concluded that leucovorin dosage 10 mg / m2 has not been able to increase folate serum levels in all patients (only an increase of 52.6%), whereas folate deficiency occurs in 47.4% of patient.

Keyword: ALL, HD MTX, Leucovorin rescue, folate deficiency, folate serum