ABSTRACT

RELATIONSHIP BETWEEN INTERLEUKIN - 6 AND ACHIEVEMENT OF HEMOGLOBIN THROUGH FERRITIN AND TRANSFERIN SATURATION IN PATIENT WITH CHRONIC KIDNEY DISEASE UNDERGOING HEMODIALYSIS (HD) AND RECEIVING ERYTHROPOIETIN THERAPY

Background: The main cause of anemia in patients with chronic kidney disease (CKD) is decreased production of erythropoietin. Other factor causes anemia in patients with CKD is inflammation. One contribution of inflammation to anemia is iron deficiency through Interleukin-6 (IL-6). IL-6 is reported can stimulate the release of hepsidin which further increases ferritin and decreases transferrin saturation (ST). The low transferrin saturation will affect the amount of iron used in the formation of hemoglobin.
Objective: To analyze the correlation between levels of Interleukin-6 (IL-6) with achievement of Hemoglobin (Hb) levels through ferritin and transferrin saturation (ST) in patients with chronic kidney disease undergoing hemodialysis (HD) and receiving erythropoietin therapy.
Methods: This was an observational cross sectional prospective study that analyze associations between IL-6 to Hb via ferritin and ST in CKD patients with hemodialysis and erythropoietin therapy. A total of 23 patients were enrolled at Adi Husada Undaan Wetan Surabaya Hospital. Blood sampling performed before hemodialysis process for measuring the levels of IL-6, ferritin, transferrin saturation (ST), and hemoglobin (Hb). The correlation analysis of IL-6 with ferritin, ferritin with ST, and ST with Hb was performed by using Pearson bivariate correlation if the data were normally distributed or Spearman's rho test if the data were not normally distributed
Results: The mean levels of IL-6, ferritin, transferrin saturation, and hemoglobin from 23 patients were 9.171 pg/mL, 542.85 ng/mL, 28.4%, and 10.0 g/dL respectively. The result of bivariate correlation analysis showed that there was no significant correlation between IL-6 with ferritin (P 0.270; r 0.240), no significant correlation between ferritin and ST (P 0.126; r 0.328), and no significant correlation between ST with Hb (P 0.115; r -0.338).
Conclusion: According to this study, there is no association between IL-6 levels with Hb through ferritin and ST in CKD patients undergoing hemodialysis and receiving erythropoietin therapy.

Keywords: Anemia, Chronic Kidney Disease, Interleukin-6, ferritin, transferrin saturation, hemoglobin