Expression of hepcidin and growth differentiation factor 15 (GDF-15) levels in thalassemia patients with iron overload and positive anti Hepatitis C Virus / Indrasari, Nuri Dyah, Timan, Ina Susianti, Amalia, Pustika

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Abstrak

ABSTRAK
Thalassemia patients who undergo life-long recurrent blood transfusion will experience iron overload in various organs including the liver and possibly suffer from chronic hepatitis C infection which may lead to liver impairment. The liver produces hepcidin, a hormone which plays role in the regulation of iron level in the blood. Various factors may influence hepcidin level in the blood. Chronic hepatitis C causes iron overload and liver impairment. Liver impairment and haemolytic anaemia due to haemoglobinopathy will suppress hepcidin production. Anaemia stimulates growth differentiation factor 15 (GDF-15) to increase erythropoiesis and suppress hepcidin production. Iron overload causes increase in hepcidin level. Presence of factors which decrease or increase hepcidin production will express various levels of hepcidin. This study aimed to identify the expression of hepcidin and GDF-15 levels in thalassemia patients with iron overload and positive anti-HCV. Information on hepcidin and GDF-15 levels are beneficial in the management of iron overload in thalassemia with positive anti-HCV.Method: This study was a descriptive analytic study in thalassemia patients who had received recurrent blood transfusion â‰¥ 12 times, suffered from iron overload (transferrin saturation > 55% and ferritin > 1,000 ng/mL), which consisted of 31 individuals with positive anti-HCV and 27 individuals with negative anti-HCV. This study was performed in Thalassemia Centre Department of Child Health and Department of Clinical Pathology, Faculty of Medicine, Universitas Indonesia, Cipto Mangunkusumo Hospital, in October 2011â€“January 2012. Serum hepcidin and GDF-15 examinations were performed using enzyme-linked immunosorbent assay (ELISA) method. Aspartate aminotransferase (AST) and alanine aminotransferase (ALT) examinations were performed using colorimetry method. Data on ferritin and transferrin saturation were obtained from medical records in the last 3 months. Data was analysed using SPSS Windows version 17 software.Results: Characteristics of subjects in this study included ferritin level, transferrin saturation, AST, and ALT were 5,289 (SD 2,492) ng/mL, 96.7 (SD 9.2)%, 41.8 (SD 26.7) U/L, and 50.6 (24.9) U/L, respectively.Â It was obtained that the hepcidin levels were within the normal limits with median of 51.5 (19-166) pg/mL, while GDF-15 levels were higher than the normal range with median of 1,936 (643-2,475) pg/mL. There was no significant difference of hepcidin and GDF-15 levels between positive and negative anti-HCV groups, with p value of 0.842 and 0.115, respectively.Conclusion: We obtained that the hepcidin levels were within normal limits and GDF-15 levels were higher than the normal range. There was no significant difference of hepcidin and GDF-15 levels between positive and negative anti-HCV group.