THE FACTORS AFFECTING INTRADIALYTIC HYPERTENSION IN ROUTINE HEMODIALYSIS PATIENTS AT ULIN GENERAL HOSPITAL BANJARMASIN INDONESIA

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THE FACTORS AFFECTING INTRADIALYTIC HYPERTENSION IN ROUTINE HEMODIALYSIS PATIENTS AT ULIN GENERAL HOSPITAL BANJARMASIN INDONESIA

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Introduction: Intradialytic hypertension is a major complication during hemodialysis and implicates increased cardiovascular complications and death. Identificatin of risk factors and the management is important to acheive better outcomes. The aim of this study is to find out the factors affecting intradialytic hypertension during the hemodialysis procedure.
Methods: This is a cross sectional study. The samples were 100 chronic kidney disease patients who underwent a routine hemodialysis in Ulin General Hospital Banjarmiasin, Indonesia who were selected using purposive sampling method. Blood pressure were monitored during hemodialysis and intradialytic hypertension was defined according to BP and clinical criteria. The patients were also underwent clinical, and laboratory tests as standard dialysis protocols. Statistical study being used to analyze the chi-square data was non-paired T-test and Mann Whitney.
Results: It was showed that among 100 samples, 64 patients (61%) had intradialytic hypertension. Electrolyte factors including natrium levels (p=0,095) and potassium levels (p=0,770) were not significantly correlated, however, ultrafiltration rate (p=0,042), erythropoietin-Stimulating-Agents treatment (p=0,000) were significantly correlated with the occurance of intradialytic hypertension.

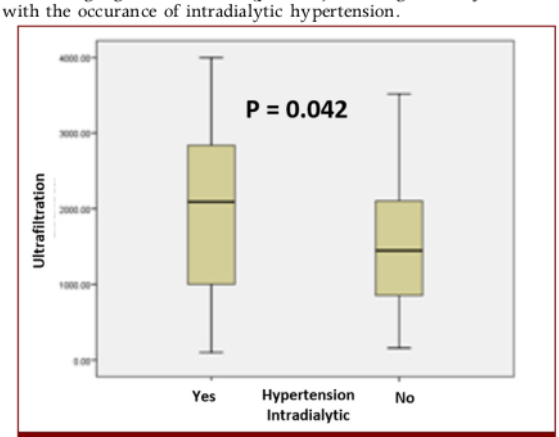

Figure 1. The difference of ultrafiltration between hypertension intradialytic in CKD patients on routine HD.

Conclusions: There are significant correlation between the ultrafiltration rate and use of erythropoietin stimulating agents with intradialytic hypertension in routine hemodialysis patients in RSUD Ulin Banjarmasin, Indonesia.

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FIBROBLAST GROWTH FACTOR 23 (FGF23) CORRELATED WITH PHOSPHATE BUT NOT CALCIUM IN ROUTINE HEMODIALYSIS

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Introduction: Chronic kidney disease (CKD) is a chronic disease that have high prevalence rate among the world, as big as 5-10% and being the 12th leading cause of death and the 17th of disability.[1-3] Based on data from the latest IRR (Indonesian Renal Registry) in 2015, there was 21.050 patients diagnosed with Terminal Renal Failure (TRF) or end stage renal disease (ESRD) undergoing routine hemodialysis. A fourfold increase compared to 2007, 4.977 patients with the highest cause of death, around 44% due to cardiovascular disease.[4]

Chronic Kidney Disease (CKD) is the most common cause of elevated level of Fibroblast Growth Factor 23 (FGF23).[5] Fibroblast growth factor 23 is a protein expressed primarily by bone osteocytes.[6] Kidney is the main target of FGF23 and its main function is to regulate phosphate reabsorption and production of $1,25(OH)_2D$.[7]

High levels of FGF23 is a very strong independent risk factor for the progression of CKD, cardiovascular disease and death in CKD.[8-11] The discovery of Fibroblast Growth Factor 23 (FGF23) represents a major milestone for understanding the impaired metabolism of phosphorus and vitamin D in CKD.[12]C-terminal measurement of FGF23 (cFGF23) in circulation using ELISA Determination of Human Fibroblast Growth Factor 23 Levels in Plasma or Cell Culture Media, Immutopis, Inc. Increased of cFGF23 in CKD patients, especially in end stage renal disease / ESRD is possible as a compensatory response due to hyperphosphatemia or phosphate excess, but it still remains unclear.[13] Block *et al.*, found that in dialysis patient, the survival was decrease significantly when serum phosphate predialysis concentration exceeds 6.5 mg/dL.[14]FGF23 also being a marker of bone mineralization such as hyperphosphatemia, hyperparathyroid, and calcium homeostatic abnormalities. High phosphate levels will binds blood calcium to form salt of calcium phosphate so that the blood calcium levels will be decreased. This situation will stimulate the synthesis and secretion of parathyroid hormone.[15,16] There are a lot of research about the correlation between calcium, phosphate, and FGF23 with chronic kidney disease but until now there is no such research in Indonesia.This study is aimed to find out the correlation between calcium and phosphate with FGF23 levels in CKD-5D patients
Methods: This is a cross-sectional study. The subjects were CKD patients undergoing routine hemodialysis twice weekly at least 3 months, aged> 18 years, anemia which hemoglobin level <13 g / dL (male) and <12gr / dL (female) and willing to participate as well as in the research by signing an informed consent letter at Hemodialysis Unit of Hasan Sadikin General Hospital Bandung.The statistical test used Pearson correlation when normal distributed and Rank Spearman Analysis when not normally distributed. Significantly when p <0,05.
Results: There were 181 patients with CKD-5D, 137 patients had complete data and 75 patients were fulfilled inclusion and exclusion criteria. There were 75 patients randomly to be the subject of the study from 97 patients. Male FGF23 level is higher than female. FGF23 correlated with phosphate level (r=0.451, p<0.001). There was no correlation between FGF23 and calcium level (r=0.176, p=0.066).

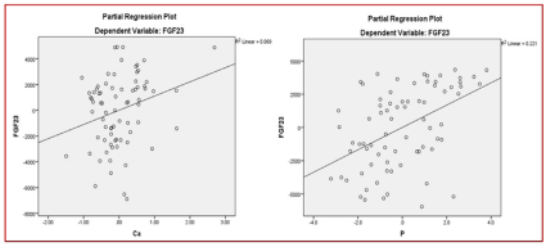

Figure 1. Correlation regresion chart of calcium, phosphate, with FGF23 level in CKD patients on routine HD.

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