

Factors associated with arterial stiffness in chronic hemodialysis patients in Jakarta: The role hemodialysis frequency and pentraxin 3

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Abstrak

Background: arterial stiffness is a mortality predictor in hemodialysis patients, hemodialysis induces inflammation, marked by an intradialysis increase in the inflammatory marker pentraxin 3 (PTX3). Arterial stiffness in twice-weekly hemodialysis patients in Indonesia is lower than has been found in studies of thrice-weekly patients. This study therefore aims to determine the factors associated with arterial stiffness, focusing on the role of hemodialysis frequency and PTX3. Methods: a cross-sectional study was conducted at Cipto Mangunkusumo Hospital, Fatmawati Hospital, and Medistra Hospital involving patients with twice- and thrice-weekly hemodialysis. Arterial stiffness was measured by carotid-femoral pulse wave velocity after hemodialysis, and blood samples for PTX3 testing were taken before hemodialysis. Bivariate and multivariate analyses were performed using chi-squared tests and logistic regression. Results: out of 122 subjects, 82 underwent twice-weekly hemodialysis. There was no difference in arterial stiffness between patients with twice- and thrice-weekly hemodialysis. In bivariate analysis, PTX3, cardiovascular disease, dialysis vintage had p values of <0.05, while the subsequent multivariate analysis showed that PTX3>2.3 ng/ml was associated with arterial stiffness (adjusted OR 5.18; 95% CI 1.07–24.91), as well as cardiovascular disease (adjusted OR 3.67; 95% CI 1.40–10.55), LDL (adjusted OR 3.10; 95% CI 1.04–9.24), and dialysis vintage (adjusted OR 2.72; 95% CI 1.001–7.38). Conclusion: predialysis PTX3 levels above 2.3 ng/ml were associated with arterial stiffness. There was no difference in arterial stiffness between patients with twice- and thrice-weekly hemodialysis.