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The relationship between pulse pressure and hypervolemia in hemodialysis patients

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Background: Hypervolemia is a common problem in hemodialysis (HD) patients. Because reaching to optimal dry-weight is difficult. Chronic volume overload causes left ventricular hypertrophy. Therefore risk of cardiovascular events is very high. High pulse pressure is an indicator of aortic stiffness, an independent risk factor for cardiovascular mortality. Pulse pressure has a strong correlation with systolic blood pressure and thus with myocardial infarction in hypertensive HD patients. Aim of this study to investigate the relationship between pulse pressures (PP) and hypervolemia.

Methods: 70 (28 male (40%), 42 female (60%)) chronic HD patients with an average age of 49 ± 13 . All patients underwent HD three times weekly were included. Fluid status was assessed twice (beginning and end of the HD) in HD patients with the body composition monitor (BCM). And blood pressure was measured simultaneously.

Results: At the beginning of HD, ESW/BW (body weight) (%) was associated systolic blood pressure (SBP) and PP measured simultaneously ($P < 0.021$, $P < 0.057$ respectively). There was no association between diastolic blood pressure with hypervolemia and PP.

Conclusion: If patients have hypervolemia especially in the interdialytic period, they have prolonged exposition to cardiovascular risk factors, because hypervolemia is correlated with SBP and PP as well. Both of them are strongly associated with cardiovascular events. By estimating optimal dry weight to obtain the removal of adequate fluid from hypervolemic patients by ultrafiltration causes decrease of systolic and pulse pressure proportionally.

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