

Hyperhomocysteinemia predicts cardiovascular outcomes in hemodialysis patients.

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BACKGROUND: We prospectively tested the prediction power of homocysteinemia for all-cause and cardiovascular outcomes in a cohort of 175 hemodialysis patients followed for 29 +/- 12 months.

METHODS: Survival analysis was performed by the Cox's proportional hazard model and data were expressed as hazard ratio and 95% confidence interval (CI).

RESULTS: During the follow-up period 51 patients died, 31 of them (61%) of cardiovascular causes and 16 patients developed non-fatal atherothrombotic complications. Plasma total homocysteine was an independent predictor of cardiovascular mortality (P=0.01). Combined analysis of fatal and non-fatal atherothrombotic events showed that homocysteine was a strong and independent predictor of these outcomes because the risk of these events was 8.2 times higher (95% CI 1.9 to 32.2) in patients in the third homocysteine tertile than in those in the first tertile (P=0.005).

CONCLUSIONS: There is a clear association between hyperhomocysteinemia and incident cardiovascular mortality and atherothrombotic events in hemodialysis patients. Intervention studies are needed to determine whether the accumulation of this substance has a causal role in the pathogenesis of cardiovascular damage in patients undergoing hemodialysis.