Abstract

Dialysis & Transplantation 2001 Aug;30(8):512-521.

Normalization of homocysteine in dialysis patients by directed repletion, with apparent reduction of access thrombosis

J. Fred Crawford, PhD; Arthur F. Rosenthal, PhD; Carla Spears, RN; H. Tabari, MD

SpectraCell Laboratories, Houston, TX; ESRD Laboratory, Fort Lauderdale, FL; Franklinton Kidney Care, Franklinton, LA.

BACKGROUND: This report describes the first study in which all members of a group of dialysis patients has their homocysteine levels reduced into the normal range.

METHODS: The method utilized a lymphocyte transformation analysis to identify specific deficiencies in vitamins B6 and B12, folic acid, minerals, glutathione, and antioxidant function at the functional, intracellular level. A supplementation program based on the results was designed for individual patients and consisted of N-acetylcysteine plus varying dosages of specific micronutrients that were determined to be functionally deficient.

RESULTS: Within 12 weeks, the individualized treatment was found to reduce serum homocysteine levels into the normal range (mean = 12.8 µmol/ L). After withdrawal of supplementation, the levels were found to remain low for at least an additional 25 weeks. It was observed that venous access thrombotic episodes were reduced by more than 50% during the 6 months following the normalization of homocysteine concentrations.

CONCLUSION: This appears to be the first reported instance of a direct physiological benefit associated with homocysteine reduction in dialysis patients.