

Abstract

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Folic Acid and vitamin B12 supplementation improves coronary flow reserve in elderly subjects with vitamin B12 deficiency.

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BACKGROUND AND AIMS: Major cardiovascular risk factors including hyperhomocysteinemia are frequently associated with decreased **coronary flow reserve (CFR)**, an important physiological parameter of the coronary circulation. This study was designed to determine whether folate (5 mg) and vitamin B12 (500 µg) supplementation in elderly patients with vitamin B12 deficiency improved CFR, while reducing homocysteine levels.

METHODS: Forty-four patients aged >65 years showing serum vitamin B12 concentrations <180 mg/dL were randomized to take either oral folate (5 mg) plus vitamin B12 (500 µg) supplementation (n = 24) or placebo (n = 20) for 8 weeks. The study course consisted of two visits: visit 1 (pretreatment) included the baseline assessment of laboratory profile and CFR values with trans-thoracic Doppler echocardiography. Visit 2 was scheduled 8 weeks later to repeat CFR and laboratory tests after therapy.

RESULTS: In the treatment arm, oral supplementation with folate and vitamin B12 significantly improved total cholesterol, serum folate, serum vitamin B12, homocysteine, and insulin resistance. At 8 weeks, the treatment group had a significant increase from baseline in CFR values (baseline: 1.7 ± 0.2 ; posttreatment: 2.1 ± 0.2 , $p < 0.001$) that was not seen in the placebo group (baseline: 1.6 ± 0.2 ; posttreatment: 1.6 ± 0.2 ; $P = ns$).

CONCLUSIONS: In this study of elderly subjects with vitamin B12 deficiency, supplementation with folate and vitamin B12 was associated with a significant improvement in CFR values.

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