

## IS VITAMIN D SUPPLEMENTATION ASSOCIATED WITH AN IMPROVEMENT IN FUNCTIONAL CAPACITY IN OLDER PEOPLE WITH CHRONIC HEART FAILURE? A DOUBLE BLIND, PLACEBO CONTROLLED TRIAL.

### Researchers

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### Aim

To test whether vitamin D supplementation improves the low functional capacity and poor quality of life found in many older patients with low vitamin D levels and chronic heart failure

### Project Outline/Methodology

This was a double-blind, placebo controlled randomised trial. We recruited patients with heart failure and impaired contraction of the left side of the heart, aged 70 or over, who had vitamin D insufficiency (defined as a 25 hydroxyvitamin D level of <50nmol/L). Subjects received 100,000 units of oral vitamin D2 or placebo at baseline, then repeated the dose 10 weeks later. We measured outcomes at baseline, 10 weeks and 20 weeks. Distance walked in six minutes was the primary outcome. Secondary outcomes were the timed up and go test of mobility, daily activity measured using 7 day accelerometry, quality of life (Minnesota scale), and subjective function measured with the Functional Limitations Profile. We measured the cardiovascular hormones BNP, renin and aldosterone, plus TNF alpha - a marker of inflammation.

### Key Results

Two thirds of patients screened had low levels of 25 hydroxyvitamin D (<50nmol/L). We randomised 105 patients. Vitamin D levels increased from a baseline of 20 nmol/L to approximately 40nmol/L at 10 weeks in the intervention group, but did not rise further at 20 weeks. Vitamin D was well tolerated, with only two mild cases of elevated calcium. Change in six minute walk distance did not differ between groups at 10 or 20 weeks. Similarly, there were no significant differences in the timed up and go test, daily activity, or subjective function. Quality of life showed a small but significant deterioration at 20 weeks in the vitamin D group.

### Conclusions

100,000 units of vitamin D2 taken every 10 weeks does not improve physical function or quality of life in older heart failure patients.

### What does this study add to the field?

We confirmed that vitamin D insufficiency is common in older heart failure patients, but despite this, vitamin D supplementation does not improve measures that are relevant to older people with heart failure. A positive effect with larger doses of vitamin D cannot however be ruled out.

### Implications for Practice or Policy

Larger doses of vitamin D may be needed to provide benefit in heart failure, but at present, there is no evidence to support vitamin D supplementation in older heart failure patients. As no benefit has been shown to replacing vitamin D in older heart failure patients, screening this patient group for vitamin D insufficiency is also not indicated.

### Where to next?

We continue to study the effects of vitamin D in other cardiovascular conditions including diabetes and high blood pressure, to see whether it may benefit other groups of patients.

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