Introduction: Orthostatic hypotension is common in older people, and commonly accompanies supine hypertension. Existing therapeutic options lack robust evidence of efficacy and some may increase supine blood pressure.

Methods: Secondary analysis of data from the VitDISH randomised trial of vitamin D for isolated systolic hypertension. Patients enrolled in the trial were aged 70 and over, with office systolic blood pressure >140mmHg, diastolic blood pressure <90mmHg, and baseline 25-hydroxyvitamin D levels <75nmol/L. Participants were randomised to receive either 100,000 units oral vitamin D3 or placebo every 3 months for a year. Outcome measures including supine blood pressure and blood pressure at 0, 1 and 3 minutes after standing, were collected at baseline, 3, 6, 9 and 12 months. The change in orthostatic fall was calculated between groups at each time point and across the trial using repeated measures ANOVA.

Results: 75/159 (47%) participants fulfilled criteria for baseline orthostatic hypotension and are analysed here. Mean age was 77.6 years (SD 5.1); baseline blood pressure was 162/76mmHg. Mean baseline orthostatic fall in blood pressure was 32/5mmHg. After adjustment for baseline age, 25-hydroxyvitamin D, systolic blood pressure and orthostatic fall, the fall in systolic blood pressure was less in the vitamin D group at 3 months (treatment effect 6mmHg, 95% CI 0 to 12), but repeated measures analysis showed no significant treatment effect (3mmHg for systolic fall, 95% CI -1 to 8; 1mmHg for diastolic fall, 95% CI -1 to 3).

Conclusion: Vitamin D supplementation did not lead to a sustained improvement in orthostatic hypotension in this analysis.