

Colchicine enhances β -adrenoceptor-mediated vasodilation in men with essential hypertension

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Abstract

Aims: Colchicine treatment has known beneficial effects on cardiovascular health and reduces the incidence of cardiovascular disease. Studies in isolated rodent arteries have shown that colchicine can enhance β -adrenoceptor-mediated vasodilation. In this translational study we examined whether this effect of colchicine was present in humans by conducting a double-blinded, placebo controlled intervention study. **Methods and Results :** Middle-aged men with essential hypertension were randomly assigned firstly to acute treatment with either 0.5 mg colchicine or placebo, and subsequently re-randomized for 3 weeks of treatment with either colchicine 0.5 mg twice daily (n=16) or placebo (n=15) followed by a washout period of 48-72 h. The vasodilator responses to isoprenaline, acetylcholine and sodium nitroprusside, were determined as well as arterial pressure, arterial compliance and plasma inflammatory markers. Acute colchicine treatment increased isoprenaline- (by 38% for the highest dose) as well as SNP- (by 29% main effect) induced vasodilation, but had no effect on the response to acetylcholine. **Conclusion:** Three weeks of twice daily treatment of colchicine, followed by a wash-out period, did not induce an accumulated or sustained effect on the β -adrenoceptor response and there was no effect on either arterial pressure, arterial compliance or on the level of measured inflammatory markers. The results provide novel translational evidence for a transient enhancing effect of colchicine on β -adrenoceptor-mediated vasodilation in humans with essential hypertension

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