

Peripheral and central haemodynamics in patients on isosorbide mononitrate and/or cilostazol with lacunar ischaemic stroke: data from the LACI-1 trial.

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Background

Cilostazol and isosorbide mononitrate (ISMN) have effects that may be beneficial in patients with cerebral small vessel disease and lacunar ischaemic stroke. We assessed their haemodynamic effects in the lacunar intervention-1 (LACI-1) trial.

Methods

Patients with lacunar ischaemic stroke were randomised to immediate ISMN, cilostazol, or their combination for 9 weeks. A fourth group received both drugs but with a delayed start. Peripheral blood pressure (BP) and heart rate (HR), and central haemodynamics (central BP, Augmentation index [AI] unadjusted and normalised to HR 75bpm, Buckberg index [BI], pulse wave velocity [PWV] were measured using the Sphygmacor) at baseline, and weeks 3 and 8. Haemodynamic differences were assessed by multiple linear regression adjusted for baseline. Data are mean difference (MD) with 95% confidence intervals (CI).

Results

We recruited 57 patients; those allocated cilostazol alone were older but otherwise the groups were well-balanced at baseline. At week 8, BP did not differ between the treatment groups, whilst HR was significantly higher in those taking cilostazol vs. no cilostazol (MD 6.42, 95% CI 1.17-11.68, $p=0.017$). BI (subendocardial perfusion) was significantly lower in those randomised to cilostazol vs. no cilostazol and in those randomised to both drugs vs. either drug. There was a tendency towards reduced AI (arterial stiffness) adjusted for HR in those taking cilostazol vs. no cilostazol and ISMN vs. no ISMN.

Conclusions

In patients with lacunar ischaemic stroke, cilostazol increased HR (a recognised effect) which may account for the reduced BI; both agents may reduce arterial stiffness. Larger trials are warranted.