Randomised double-blind placebo-controlled study of the effects of candesartan versus amlodipine treatment on capillary rarefaction in patients with essential hypertension

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**Background:** A reduction in the density of capillaries (rarefaction) is known to occur in many tissues in patients with essential hypertension and may play a role in increasing peripheral resistance and blood pressure. The aim of this trial was to assess in a randomised, double blind, placebo controlled parallel group design the effects of treatment of hypertension with candesartan versus amlodipine on microvascular rarefaction and other indices of vascular function.

**Patients & Methods**: Twenty-two individuals with mild-to-moderate hypertension were recruited in the study. After a 2-week single-blind placebo run-in period, patients who remained hypertensive (systolic blood pressure 140–180 mmHg and/or diastolic blood pressure 90 -110 mmHg) were randomised to 8-weeks treatment with either candesartan tablets 8mg daily (with forced titration to 16mg daily after 2 weeks) or amlodipine tablets 5mg daily (with forced titration to 10mg daily after 2 weeks). The capillary microcirculation was studied using CapiScope system CAM1. Pulse wave velocity was measured by the Complior machine while central blood pressure and aortic Augmentation Index were measured by Omron HEM-9000AI machine.

**Results**: Significant reductions in both systolic and diastolic brachial blood pressure, and central blood pressure were observed after 4 and 8 weeks treatment with either candesartan or amlodipine but there was no significant effect on basal (functional) or maximal (structural) capillary densities, or pulse wave velocity.