BIHS
British and Irish Hypertension Society
Committed to preventing cardiovascular disease
Annual Scientific Meeting
The Technology and Innovation Centre
University of Strathclyde, Glasgow
11th - 13th September 2017

Glyceryl trinitrate lowers blood pressure and blood pressure variability in acute stroke patients presenting with lacunar syndromes

Jason P Appleton[1], Lisa J Woodhouse[1], Zhe Kang Law[1], Nikola Sprigg[1], Joanna M Wardlaw[2], Philip M Bath[1]

[1]Stroke Trials Unit, University of Nottingham, Nottingham, United Kingdom, [2]Centre for Clinical Brain Sciences, University of Edinburgh, Edinburgh, United Kingdom

Background: Lacunar syndromes (LACS) are a common acute stroke presentation with differing aetiologies to cortical and posterior syndromes. Increased blood pressure (BP) and blood pressure variability (BPV) are associated with poor outcome after stroke. We assessed the haemodynamic effects of the nitric oxide donor glyceryl trinitrate (GTN) on acute stroke patients presenting with LACS.

Methods: The Efficacy of Nitric Oxide in Stroke (ENOS) trial randomised 4011 patients with acute stroke and raised systolic BP (140-220mmHg) to transdermal GTN or no GTN within 48 hours of onset. LACS was defined clinically using the Oxfordshire Community Stroke Project classification. Haemodynamic parameters were measured at baseline and days 1-7. Between-visit BPV was defined as the standard deviation of systolic BP over days 1 to 7. Data are mean difference (MD) with 95% confidence intervals (CI). Analyses were adjusted for baseline prognostic factors.

Results: Baseline BP was similar in LACS (n=1342) and non-LACS (n=2509) participants (167/90 vs. 167/89 mmHg). Overall, BPV did not differ between LACS and non-LACS presentations. In LACS, GTN lowered BP at day 1 by 7.9/3.8 mmHg compared with no GTN ($p<0.001$), and in non-LACS by 6.4/3.4 mmHg ($p<0.001$). In LACS, GTN lowered BPV compared with no GTN (MD -0.67, 95%CI -1.31 to -0.02, p=0.042); a non-significant tendency towards reduced BPV with GTN was seen in non-LACS (MD -0.08, 95%CI -0.58 to 0.43, p=0.77).

Conclusions: GTN lowers BP and between-visit BPV in acute stroke patients presenting with LACS. Agents that reduce BPV may be of benefit in acute stroke and warrant further investigation.

Clinical Trial Registry: ENOS trial registration: ISRCTN99414122, ENOS trial website: http://www.enos.ac.uk