

Letter to the Editor**TO THE EDITOR****Management of blood pressure in acute stroke**

We read with interest the recent article by Kanji et al¹ reporting an audit of the management of blood pressure (BP) in acute stroke. Of particular note was their finding in patients with ischaemic stroke that nitroglycerin (or glyceryl trinitrate, GTN, 1-1.5 inches) paste caused a >15% reduction of BP over the first 24 hours on 60% of the occasions it was used. As a nitric oxide donor, GTN will lower BP through combined arterial and venous dilation. We have assessed the effect of daily GTN patches on BP in two small randomised controlled trials involving patients with acute stroke.^{2,3} These studies, involving 127 patients in total, found that GTN lowered 24 hour BP by an average of 6-8%, compatible with recommendations that BP should not be reduced by more than 15% in acute stroke. Nitrates can cause profound falls in BP if patients are dehydrated or hypovolaemic and we always ensure that these states are treated prior to the administration of GTN. Use of GTN patches rather than paste offers several advantages: first, it reduces the variation in dosage seen with the use of topical application of ointment or paste;⁴ second, treatment can be given once rather than thrice daily; and last, the onset of action will be more gradual, reducing the risk of sudden falls in BP. Transdermal preparations offer advantages over other routes of administration for the management of high BP in acute stroke; intravenous formulations such as labetalol or sodium nitroprusside require close monitoring in a high dependency environment while the administration of oral preparations cannot be guaranteed acutely since many patients are dysphagic and intolerant of nasogastric tubes. Sublingual nifedipine, reported as being used commonly in the study by Kanji and colleagues,¹ should never be used since the falls in BP are typically sudden, large and unsustainable, the very qualities we wish to avoid in acute stroke.

The management of BP in acute stroke remains an enigma;⁵ high BP is an independent prognostic factor for early recurrence and the development of cerebral oedema, and late death or dependency⁶ and yet many physicians are troubled that cerebral perfusion may fall in parallel with BP. The international multi-centre trial, "Efficacy of Nitric Oxide in Stroke" (ENOS) trial, is formally investigating this issue, specifically whether nitric oxide, administered as GTN patches, is safe and effective in improving outcome after acute stroke, and whether prior antihypertensive agents should be continued or stopped during the acute phase of stroke⁷ (see www.nottingham.ac.uk/stroke-medicine/enosinde.htm for further information and if your centre is interested in joining).

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