

Glyceryl trinitrate vs. control, and continue versus stop temporarily prior antihypertensive therapy, in acute stroke: main results from the Efficacy of Nitric Oxide in Stroke (ENOS) trial

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BACKGROUND

- High blood pressure (BP) is common during the acute phase of stroke and is associated with a poor outcome.
- Although small and medium-sized trials have assessed the effect of altering BP on outcome, the management of high BP remains unclear.
- Up to 50% of patients with acute stroke take antihypertensive drugs. Whether these should be continued or temporarily withdrawn in the immediate stroke period remains unclear.

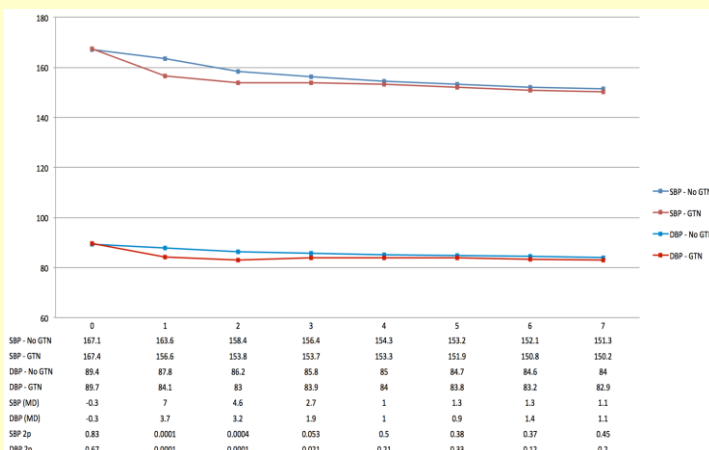
METHODS

- We randomised 4011 patients with acute ischaemic or haemorrhagic stroke and elevated systolic blood pressure to 7 days of transdermal glyceryl trinitrate (GTN 5 mg/day) or none; of these 2097 patients were assigned to continue or stop antihypertensive drugs taking prior to their stroke. Treatments for given for 7 days.
- The primary outcome was functional outcome, assessed with the modified Rankin Scale (mRS) at 90 days, and analysed with ordinal regression.
- Other outcomes included discharge destination, activities of daily living and cognition.

RESULTS

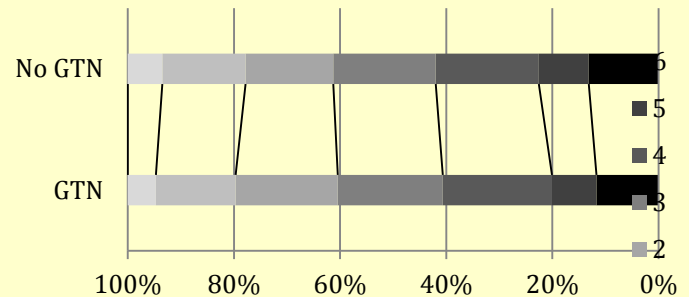
GTN vs No GTN

- Blood pressure was 162.2/89.5mmHg at baseline, and was significantly lower in 2000 patients allocated to GTN as compared to 2011 randomised to no GTN: difference -7.0/-3.5 mm Hg; both $p < 0.0001$.



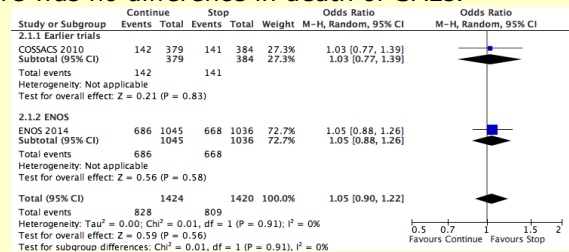
RESULTS (cont.)

- Functional outcome at day 90 did not differ between patients randomised to GTN as compared with no GTN, adjusted common odds ratio for worse outcome with GTN 1.01; (95% CI 0.91-1.13; $p = 0.83$).



Continue vs Stop

- Blood pressure was 167/88 at baseline, and significantly lower on day 7 in 1053 patients allocated to continue antihypertensive treatment as compared to 1044 randomised to stop temporarily: difference -9.5/-5.1 mm Hg; both $p < 0.0001$.
- Functional outcome did not differ between those assigned to continue versus stop pre-stroke antihypertensives, adjusted common odds ratio for worse outcome with continue 1.05; (95% CI 0.90 to 1.22; $p = 0.55$).
- Compared with patients who stopped treatment, those who continued it were less likely to be discharged home (56.9% and 62.6%; $p = 0.008$) or have moderate/good activities of daily living (Barthel Index >60; 59.2% and 64.7%; $p = 0.031$); they also had lower cognition scores at 90 days.
- There was no difference in death or SAEs.



CONCLUSIONS

- In patients with acute stroke and high blood pressure, treatment with transdermal GTN lowered blood pressure, had acceptable safety, but did not improve functional outcome.
- There was no evidence to support a policy of immediately continuing pre-stroke antihypertensive drugs in patients with acute stroke.
- Further studies are necessary to evaluate GTN when administered very early after stroke onset.