ESOC Abstract (max 250 words)

The effect of transdermal glyceryl trinitrate in acute stroke patients with carotid stenosis: data from the Efficacy of Nitric Oxide in Stroke trial

Appleton JP, Woodhouse LJ, Law ZK, Sprigg N, Bath PM, for the ENOS Investigators

Stroke Trials Unit, Division of Clinical Neuroscience, University of Nottingham, Nottingham UK

Background:
There is concern that blood pressure lowering in acute stroke may compromise cerebral perfusion and worsen outcome in the context of carotid stenosis. The effect of glyceryl trinitrate (GTN) on outcome in acute stroke patients with carotid stenosis is unclear. We sought to assess GTN's effect in this context using data from the Efficacy of Nitric Oxide in Stroke (ENOS) trial.

Methods:
ENOS randomised 4011 patients with acute stroke and raised systolic blood pressure to transdermal GTN or no GTN within 48 hours of onset. The primary outcome was the modified Rankin Scale (mRS) at day 90. Ipsilateral carotid stenosis was split: <30%; 30-50%; 50-70%; >70%. Bilateral carotid stenosis was split: <30%; 30-50%; >50%. Data are odds ratios (OR) with 95% confidence intervals (CI) adjusted for baseline prognostic factors.

Results:
2023 (60.5%) ischaemic stroke participants had carotid imaging. Compared with participants with <30%, >70% ipsilateral stenosis was associated with an unfavourable shift in mRS at 90 days (OR 1.88, 95% CI 1.44-2.44, p<0.001). Those with >70% stenosis who received GTN had a favourable shift in mRS (OR 0.56, 95% CI 0.34-0.93, p=0.024) compared to those who received no GTN. Tendencies towards less dependency, albeit non-significant, were seen in 30-50% and 50-70% groups. No differences in mRS were seen across groups of bilateral stenosis or between those who received GTN or not.

Conclusions:
Severe ipsilateral carotid stenosis is associated with poorer functional outcome at 90 days following ischaemic stroke. GTN appears safe in acute stroke patients with ipsilateral or bilateral carotid stenosis.