

RIGHT-2 trial results



Background

High blood pressure is a common finding in the acute phase of stroke and is predictive of a poor outcome. Previous studies aiming to lower blood pressure have produced mixed results and the effect of lowering blood pressure in the ultra-acute phase (prehospital) remains unknown. It has been demonstrated that it is possible to use transdermal glyceryl trinitrate (GTN patches) to lower blood pressure in acute stroke. This study investigated the effect of GTN on patients' functional outcomes following stroke.

Methods

Between February and May 2018 paramedics from Wexham, High Wycombe and Stoke Mandeville ambulance stations recruited patients to this national trial. Patients presenting within 4 hours of onset of stroke symptoms who displayed 2 or 3 of the face-arms-speech test (FAST) criteria and with a systolic blood pressure of at least 120 mmHg were randomized to receive a course of patches containing either GTN or placebo. The first patch was applied by the paramedic in the prehospital setting; the following three patches were applied by nurses in the hospital. Although it was not possible to blind paramedics or nurse to the treatment allocation, neither patients nor those collecting outcome data were aware of the allocation.

The primary outcome assessed was the modified Rankin score (mRS), a measure of functional disability ranging from zero (no symptoms) through increasing levels of disability and dependence to six (death). This was measured 90 days after the onset of stroke symptoms.

Results

1149 participants were recruited to the trial with 568 receiving GTN and 581 receiving placebo. Groups were similar with regard to age (average age 72.5 years), sex (48% women) and time from onset to randomisation (median time 71 minutes).

Key findings

- No difference in mRS scores was detected between the GTN group and the placebo group.
- When analysing only patients in whom stroke or transient ischaemic attack (TIA, also known as mini-stroke) was confirmed there was no difference in mRS scores between the GTN group and the placebo group.

Secondary findings

- Blood pressure was lowered by GTN in the first two days following treatment; these effects disappeared by day three.
- There was no difference in the number of deaths between the GTN and the placebo group.

- Although not reaching statistical significance, there was a trend towards worse outcomes in patients with confirmed stroke or TIA, especially amongst those with intracerebral haemorrhage.
- In patients with a final diagnosis of stroke mimic (symptoms initially suggestive of stroke but later ruled out by brain scanning) there was a significant improvement in outcomes amongst the GTN group.
- CT scanning revealed no difference in size of infarct (dead brain tissue) between GTN and placebo groups, although when looking only at patients with strokes due to bleeding in the brain those in the GTN group were found to have larger infarcts.

Conclusions

Transdermal GTN was not found to improve outcomes for patients with suspected acute stroke.

Further information

The full paper, “Prehospital transdermal glyceryl trinitrate in patients with ultra-acute presumed stroke (RIGHT-2): an ambulance-based, randomised, sham-controlled, blinded, phase 3 trial”, has been published in The Lancet and can be accessed at:

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)30194-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)30194-1/fulltext)

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The RIGHT-2 investigators