Effects of antiplatelet therapy after stroke due to intracerebral haemorrhage: main results of the REstart or STop Antithrombotics Randomised Trial (RESTART)

RESTART Collaboration

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Adults ≥18y, taking antithrombotic (antiplatelet or anticoagulant) therapy for the prevention of occlusive vascular disease at ICH onset, who discontinued antithrombotic therapy, and survived ≥24h

Brain MRI before randomisation

Randomisation (central)

1:1

START antiplatelet therapy*

AVOID antiplatelet therapy

Follow-up (central, masked) for vascular events, death, mRS, adherence, BP control

* Aspirin or clopidogrel or dipyridamole (open, no placebo)
Primary outcome: recurrent ICH

Start vs. avoid antiplatelet therapy
Adjusted HR 0.51 (0.25–1.03): p=0.060

- Unchanged in unadjusted and adjusted models, and sensitivity analyses
- No heterogeneity in sub-group analyses
- Adherence 99% after randomisation, 82% @ 4y
- Median systolic BP 130mmHg throughout

Avoid: n=23/268 (8.6%)
Start: n=12/268 (4.5%)
Starting antiplatelet therapy after ICH associated with antithrombotic drug use

• Reassuring effects on recurrent ICH
  – Lower than the increase in risk expected (RR=1·67 in ATT trials)
  – Antiplatelet therapy might reduce the risk of recurrent ICH
    • HR 0·51 (95% CI 0·25–1·03), p=0·060
  – Any possible increase in risk seems too small to exceed the established benefits of antiplatelet therapy

• No heterogeneity in sub-groups, but estimates imprecise

• Recruit to ongoing trials (RESTART-Fr, STATICH)

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Thank you to everyone who helped…

- Participants, relatives, and carers
- Primary care practitioners
- Collaborators: at 122 hospitals in the UK
- Trial management group: K Innes (senior trial manager); L Dinsmore (imaging manager); J Drever (data manager); C Williams (centre coordinator); D Perry, C McGill, D Buchanan, A Walker, A Hutchison, C Matthews (database programmers); R Fraser, A McGrath, A Deary, R Anderson, A Maxwell, P Walker (trial support officers); J Stephen, C Holm Hansen, R Parker, A Rodriguez (unmasked independent statisticians)
- Data monitoring committee: J Bamford (chair), J Armitage, J Emberson, GJE Rinkel, G Lowe
- Outcome event adjudicators: WN Whiteley, MR Macleod (internal); T Gattringer (external)
- Systematic Management, Archiving and Reviewing of Trial Images Service (SMARTIS): JM Wardlaw (director), J Palmer, E Sakka, J Adil-Smith
- Brain imaging assessors: PM White, DP Minks, D Mitra, P Bhatnagar, JC du Plessis, Y Joshi
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- Clinical research networks: NIHR clinical research network, NRS Scottish Stroke Research Network, SINAPSE collaboration
- Clinical trials unit: Edinburgh Clinical Trials Unit
- TICH-2 trial team: co-enrolment
- Peer reviewers: ?
- Editors and publisher…

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