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Books

## Recanalization in Cerebral Venous Thrombosis

### A Systematic Review and Meta-Analysis

The role of recanalization of the occluded dural sinus or vein in the outcome of patients with cerebral venous thrombosis (CVT) is not established. The aim of the article published recently in *Stroke Journal* (*Stroke*. 2018;49: 1828-1835) is to systematically review, in patients with CVT, the recanalization rate and its association with clinical outcome

and CVT recurrence.

The results showed that four hundred sixty-eight studies were identified, and 19 studies were included. The authors found report of 694 patients with recanalization in the follow-up among 818 cases of CVT. The overall pooled proportion of patients achieving recanalization was 85%. There was a significant increase in the chance of favourable outcome (modified Rankin scale,

0–1) in patients with recanalization with a pooled odds ratio of 3.3 in the random effects meta-analysis and a common odds ratio of 3.3 in the ordinal logistic regression.

The overall rate of recanalization in patients receiving anticoagulation was 85%, but exclusion of severe patients from follow-up imaging is a plausible source of bias. Lack of venous recanalization was associated with worse clinical outcome.

## Patent foramen ovale closure, antiplatelet therapy or anticoagulation therapy alone for management of cryptogenic stroke? A clinical practice guideline

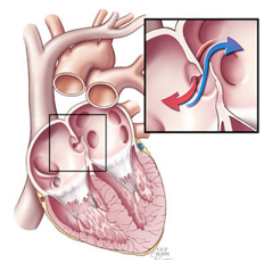
- The recommendations apply to patients under 60 years old with patent foramen ovale (PFO) who have had a cryptogenic ischaemic stroke, when extensive workup for other aetiologies of stroke is negative

- For patients who are open to all options, we make a weak recommendation for PFO closure plus antiplatelet therapy rather than anticoagulant therapy

- For patients in whom anticoagulation is contraindicated or declined, we make a strong recommendation for PFO closure plus antiplatelet therapy versus antiplatelet therapy alone

- For patients in whom closure is contraindicated or declined, we make a weak recommendation for anticoagulant therapy rather than antiplatelet therapy.

- Further research may alter the recommendations that involve anticoagulant therapy. *BMJ* 2018; 362 (Published 25 July 2018)



# Prevalence of Patent Foramen Ovale in Cryptogenic Transient Ischaemic Attack

A cryptogenic stroke is one that has eluded an explanation despite complete investigation aimed at uncovering a cause. Since 2003, six randomised trials have collected a large amount of data showing the benefit of patent foramen ovale (PFO) closure compared with standard medical therapy in young patients (aged 18–60 years) with cryptogenic stroke. However, new questions have now emerged concerning the best treatment for people older than 60 years.

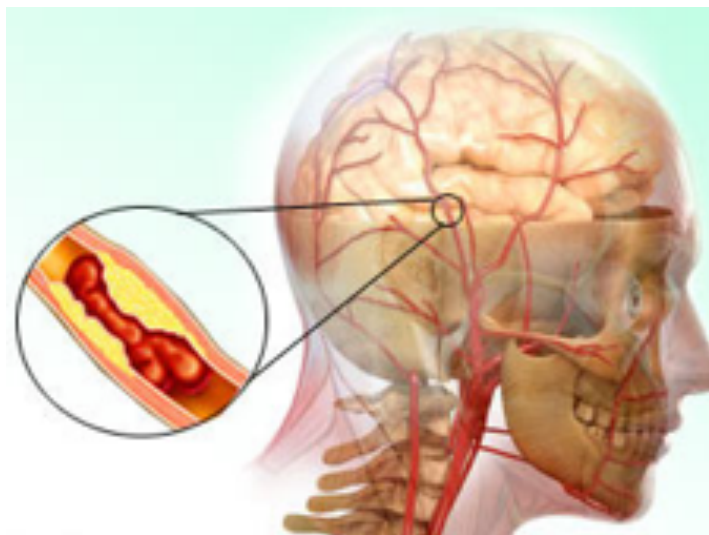
Over the past year, the research interest in PFO has shifted away from debating the efficacy of closure

and towards optimising patient selection. In *The Lancet Neurology*, Sara Mazzucco and colleagues (*The Lancet Neurology* July 2018) contribute to this shift by showing that screening for a right-to-left shunt (RLS) using contrast-enhanced transcranial Doppler (bubble-TCD) was feasible in 91% of a series of patients aged over 60 years with transient ischaemic attack or non-disabling stroke. Not surprisingly, the results are consistent with those seen in younger patients—the prevalence of PFO is significantly higher in patients with cryptogenic stroke than in patients with stroke of

known cause.

Mazzucco and colleagues have shown that PFO is easily identifiable with bubble-TCD and overrepresented in older patients with cryptogenic stroke, which implicates PFO as a cause of stroke, even in patients older than 60 years. Treatment options for this population should be investigated. The question remains: having made a diagnosis of PFO-related stroke in an otherwise healthy 70-year-old, should clinicians change their management strategy and consider closure?

# Prior Intravenous Stroke Thrombolysis Does Not Increase Complications of Carotid Endarterectomy



Carotid endarterectomy (CEA) is recommended within 14 days after carotid artery stroke to prevent recurrence. However, the optimal timing of CEA after intravenous thrombolysis (IVT) remains unclear. The authors studied the safety of CEA after IVT while taking into account both stroke recurrence and CEA-related complications. In this study (*Stroke*. 2018;49:1843-1849) patients who underwent IVT followed by CEA in

Helsinki University Hospital 2005 to 2016 were withdrawn from prospectively collected registers. The incidence of stroke recurrence during the time between IVT and CEA, peri/postoperative stroke, hyperperfusion syndrome or drug-resistant high blood pressure, and 3-month outcome measured by modified Rankin Scale was recorded. Stroke patients treated with CEA without preceding IVT were used as controls.

Altogether 128 CEAs with preceding IVT and 777 CEAs for stroke without IVT were identified. The median time from IVT to CEA was 9 days. Seven patients (5.5%) underwent CEA within 24 hours, 20 (15.6%) within 48 hours and 87 (68.0%) within 2 weeks from IVT. Stroke recurrence in IVT-CEA patients was 5.5% at median 4 days after IVT (range, 0–8 days). Outcome from CEAs performed within 48 hours from IVT did not differ from CEAs performed later with respect to peri/postoperative ischemic strokes (5.0% and 3.7%), hemorrhagic strokes (5.0% and 1.9%), neck hematomas (5.0% and 8.3%), myocardial infarctions (0.0% and 0.9%), or 3-month modified Rankin Scale. There was a tendency toward higher incidence of hyperperfusion syndrome in the patients operated within 48 hours from IVT. The CEA-related stroke rate was similar to that of the operation without thrombolysis. Only smoking was significantly associated with peri/postoperative stroke.

The study concluded that time between IVT and CEA was not associated with CEA-related complications. The high rate of stroke recurrence during the waiting time for CEA underscores the importance of shortening surgery delays.

## Tele-Rehabilitation after Stroke: An Updated Systematic Review of the Literature



Tele-rehabilitation for stroke survivors has emerged as a promising intervention for remotely supervised administration of physical, occupational, speech, and other forms of therapies aimed at improving motor, cognitive, and neuropsychiatric deficits from stroke.

The authors of this study (jstrokecerebrovasdis.2018.05.013) aimed to provide an updated systematic review on the efficacy of tele-rehabilitation interventions for recovery from motor, higher cortical dysfunction, and poststroke depression among stroke survivors.

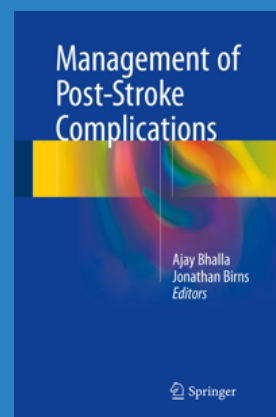
The researchers searched PubMed and Cochrane library from January 1, 1980 to July 15, 2017 using the following keywords: "Telerehabilitation stroke," "Mobile health rehabilitation," "Telemedicine stroke rehabilitation," and "Telerehabilitation." Our inclusion criteria were randomized controlled trials, pilot trials, or feasibility trials that included an intervention group that received any tele-rehabilitation therapy for

stroke survivors compared with a control group on usual or standard of care.

This search yielded 49 abstracts. By consensus between 2 investigators, 22 publications met the criteria for inclusion and further review. Tele-rehabilitation interventions focused on motor recovery (n=18), depression, or caregiver strain (n=2) and higher cortical dysfunction (n=2). Overall, tele-rehabilitation interventions were associated with significant improvements in recovery from motor deficits, higher cortical dysfunction, and depression in the intervention groups in all studies assessed, but significant differences between intervention versus control groups were reported in 8 of 22 studies in favour of tele-rehabilitation group while the remaining studies reported nonsignificant differences.

This updated systematic review provides evidence to suggest that tele-rehabilitation interventions have either better or equal salutary effects on motor, higher cortical, and mood disorders compared with conventional face-to-face therapy.

## STROKE BOOKS



### Management of Post-Stroke Complications

This book highlights the underlying importance of post-stroke complications during recovery, allowing healthcare professionals managing stroke patients to understand their frequency and identify which patients are at risk of developing such complications. Complications are categorised into neurological and non-neurological, and the time-frame for these complications both in the short-term and long-term are discussed.

The common practices in managing post-stroke complications and the skills required in their prevention are described, as is the evidence base from clinical trials around their management. The book concludes with a discussion of new developments and research priorities for the future.

Management of Post-Stroke Complications is aimed at members of the multidisciplinary stroke team, stroke physicians, neurologists, general practitioners, stroke specialists in training, and medical students.

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# Sex differences in the evaluation and treatment of acute ischaemic stroke

With the greater availability of treatments for acute ischaemic stroke, including advances in endovascular therapy, personalised assessment of patients before treatment is more important than ever. Women have a higher lifetime risk of stroke; therefore, reducing potential sex differences in the acute stroke setting is crucial for the provision of equitable and fast

treatment. Evidence indicates sex differences in prevalence and types of non-traditional stroke symptoms or signs, prevalence of stroke mimics, and door-to-imaging times, but no substantial differences in use of emergency medical services, stroke knowledge, eligibility for or access to thrombolysis or thrombectomy, or outcomes after either therapy. Women presenting with stroke

mimics or non-traditional stroke symptoms can be misdiagnosed, which can lead to inappropriate triage, and acute treatment delays. It is essential for health-care providers to recognise possible sex differences in stroke symptoms, signs, and mimics. Future studies focused on confounders that affect treatment and outcomes, such as age and pre-stroke function, are also needed.



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