

- Title** Efficacy and safety of mechanical thrombectomy using stents retrievers in the treatment of acute ischaemic stroke
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Aim

To analyse the efficacy and safety of mechanical thrombectomy with stent retrievers in the treatment of acute ischaemic stroke.

Conclusions and results

Available scientific evidence suggests that stent retrievers are safe and effective devices in the treatment of acute ischaemic stroke due to intracranial artery occlusion.

Based on the pre-defined inclusion and exclusion criteria, 17 primary studies were finally selected. A breakdown by epidemiological design showed that 2 were RCTs which compared the Solitaire™ and Trevo® devices to the Merci® device, 3 were comparative series which assessed stent retrievers with respect to rtPA or Merci®, and 12 were case series which addressed different stent retrievers. According to the GRADE system, the cases series displayed very low quality for all the variables of interest. In the case of RCTs, the quality was high for most of the variables of interest. The RCTs indicated that stent retrievers had a safety profile similar to that of the Merci® device. Both Solitaire™ and Trevo® obtained a higher percentage of successful recanalization and acceptable clinical outcomes at 90 days, while mortality at 90 days was similar in both groups. In terms of effectiveness, the results yielded by the pooled analysis of the case series were similar to those previously described. The only assessable variable of safety was symptomatic haemorrhage, which registered a percentage slightly higher than that reported in the controlled studies.

Recommendations

Given the risk of adverse events associated with stents retrievers, should be performed in centers with adequate technical and professional staffing in selected patients.

Methods

A systematic review was made of the scientific literature in the main databases. The search was conducted in September 2013, with a subsequent update until February 2014. Two independent reviewers selected the papers in accordance with a series of pre-established inclusion/exclusion criteria. The data were summarised in evidence tables, and the methodological quality of the studies was assessed using the system developed by the Grading of Recommendations Assessment, Development

and Evaluation (GRADE) Working Group. To obtain a pooled measure of the variables of interest, we performed a meta-analysis in the case of randomised clinical trials (RCTs) using the Review Manager programme version 5.2 and calculated means±SDs weighted by sample size for the case series using the SPSS statistics programme version 19.

Further research/reviews required

Further studies are needed to ascertain, both the safety and efficacy of stents retrievers in patients with different occlusion site, neurological deficit or time from symptom onset to arterial puncture. Moreover unknown whether the technique has a learning curve.

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