

Treatment of intracranial aneurysms with self-expandable braided stents: A systematic review and meta-analysis

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BACKGROUND: The safety and efficacy of treatment with self-expandable braided stents (LEO and LVIS) required further investigation. **PURPOSE:** Our aim was to analyze the outcomes after treatment with braided stents. **DATA SOURCES:** A systematic search of 3 databases was performed for studies published from 2006 to 2017. **STUDY SELECTION:** According to Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines, we included studies reporting patients treated with LEO or LVIS stents. **DATA ANALYSIS:** Random-effects meta-analysis was used to pool the following: aneurysm occlusion rate, complications, and neurologic outcomes. **DATA SYNTHESIS:** Thirty-five studies evaluating 1426 patients treated with braided stents were included in this meta-analysis. Successful stent delivery and complete aneurysm occlusion were 97% (1041/1095; 95% CI, 95%-98%) ($I^2=44%$) and 88.3% (1097/1256; 95% CI, 85%-91%) ($I^2=72%$), respectively. Overall, treatment-related complications were 7.4%

(107/1317; 95% CI, 5%-9%) (I²= 44%). Ischemic/thromboembolic events (48/1324=2.4%; 95% CI, 1.5%-3.4%) (I²=27%) and in-stent thrombosis (35/1324=1.5%; 95% CI, 0.6%-1.7%) (I²=0%) were the most common complications. Treatment-related morbidity was 1.5% (30/1324; 95% CI, 0.9%-2%) and was comparable between the LEO and LVIS groups. Complication rates between the anterior (29/322 = 8.8%; 95% CI, 3.4%-12%) (I²= 41%) versus posterior circulation (10/84 = 10.5%; 95% CI, 4%-16%) (I²= 0%) and distal (30/303 = 8%; 95% CI, 4.5%-12%) (I²= 48%) versus proximal aneurysms (14/153 = 9%; 95% CI, 3%-13%) (I²= 46%) were comparable (P > .05).

LIMITATIONS: Limitations were selection and publication biases. **CONCLUSIONS:** In this analysis, treatment with the LEO and LVIS stents was relatively safe and effective. The most common complications were periprocedural thromboembolisms and in-stent thrombosis. The rate of complications was comparable among anterior and posterior circulation aneurysms, as well as for proximal and distally located lesions. © 2018 by the American Society of Neuroradiology.