EFFECT OF THROMBUS MIGRATION ON ACUTE ISCHEMIC STROKE OUTCOMES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Abstract

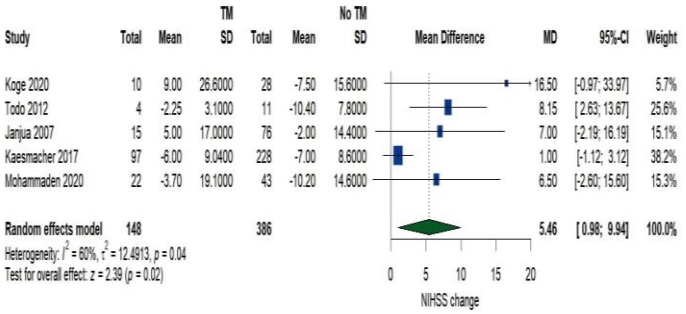
Introduction: This meta-analysis aimed at comparing clinical outcomes between patients with thrombus migration (TM) and those without, after acute ischemic stroke.

Methods: We conducted a systematic search of PubMed, Web of Science, Scopus, and Cochrane Library using the keywords "Acute Ischemic Stroke" and "Thrombus Migration". Studies published up to 2024 were included based on PRISMA guidelines.

Results: A total of 17 studies encompassing 4,588 patients were included. There was no statistically significant difference between the TM group and the no TM group in mortality rates (RR 1.30; 95% 0.91–1.86; p = 0.15), 90-day favorable outcomes (RR 1.06; 95% CI 0.95–1.18; p = 0.31) and symptomatic intracranial hemorrhage (RR 1.72; 95% CI 0.99– 3.00; p = 0.06). Instead, there was a statistically significant greater reduction in NIHSS scores in the no TM group with a mean difference (MD) of 5.46 (95% CI: 0.98–9.94; p = 0.02). regarding reperfusion, there was no statistically significant difference in achieving grade 2b or more according to both mTICI scale (RR 0.98; 95% CI 0.78–1.23; p = 0.84) and eTICI scale (RR 0.93; 95% CI 0.86–1.01; p = 0.10)

Conclusions: while there is a statistically significant greater reduction in NIHSS scores in the No TM group compared to the TM group, this meta-analysis demonstrates no statistically significant differences in mortality, favorable outcomes, symptomatic intracranial hemorrhage, or reperfusion rates. Further large-scale studies are required to clarify the effects of TM on different treatment modalities.

The mean difference in NIHSS scores between the two groups



Recent Publications

1. Riegler C, Siebert E, Kleine JF, Nolte CH. Thrombus migration in ischemic stroke due to large vessel occlusion: a question of time. J Neurointerv Surg. 2023 Nov;15(e2):e216-e222. doi: 10.1136/jnis-2022-019365IF: 4.5 Q1 . Epub 2022 Nov 1. PMID: 36319085; PMCID: PMC10646911.
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3. Koge J, Matsumoto S, Nakahara I, Ishii A, Hatano T, Tanaka Y, Kondo D, Kira JI, Nagata I. Impact of thrombus migration on clinical outcomes in patients with internal carotid artery occlusions and patent middle cerebral artery. J Neurol Sci. 2020 May 15;412:116737. doi: 10.1016/j.jns.2020.116737. Epub 2020 Feb 15. PMID: 32087429.
4. Ye, Gengfan, et al. "Risk of Secondary Embolism Events during Mechanical Thrombectomy for Acute Ischemic Stroke: A Single-Center Study Based on Histological Analysis." Clinical Neurology and Neurosurgery, vol. 193, 2020, pp. 105749–105749, https://doi.org/10.1016/j.clineuro.2020.105749.
5. Sheriff F, Diz-Lopes M, Khawaja A, Sorond F, Tan CO, Azevedo E, Franceschini MA, Vaitkevicius H, Li K, Monk AD, Michaud SL, Feske SK, Castro P. Microemboli After Successful Thrombectomy Do Not Affect Outcome but Predict New Embolic Events. Stroke. 2020 Jan;51(1):154-161. doi: 10.1161/STROKEAHA.119.025856. Epub 2019 Dec 4. PMID: 31795906; PMCID: PMC7111557.



Biography

Mohamed Elzayat is currently an intern at Mansoura University. He is very interested in research and actively participates in research courses and fellowships. One notable participation was the research fellowship offered by the Middle Eastern College of Obstetricians and Gynecologists (MCOG) (2022-2024) when he was awarded the Best Fellow Award then joined the college board as vice chair of the research and innovation office. In addition, he works as the research development officer at Neuropedia. He is also the co-founder of Alpha Research Organization (ARO), an organization which serves as an educational platform for medical students and physicians, and Neutromedica Research Team, a team of more than 100 researchers across the world who are actively working on international projects. He has published only 2 articles; however, he has many articles under review and others ongoing. Hopefully, he will have around 10 more published articles - neurology-related- soon.

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