Minocycline for acute stroke treatment: a systematic review and meta-analysis of randomized clinical trials(Article)

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Abstract_ [View references \(27\)](#)

Background: Various randomized-controlled clinical trials (RCTs) have investigated the neuroprotective role of minocycline in acute ischemic stroke (AIS) or acute intracerebral hemorrhage (ICH) patients. We sought to consolidate and investigate the efficacy and safety of minocycline in patients with acute stroke. **Methods:** Literature search spanned through November 30, 2017 across major databases to identify all RCTs that reported following efficacy outcomes among acute stroke patients treated with minocycline vs. placebo: National Institute of Health Stroke Scale (NIHSS), Barthel Index (BI), and modified Rankin Scale (mRS) scores. Additional safety, neuroimaging and biochemical endpoints were extracted. We pooled mean differences (MD) and risk ratios (RR) from RCTs using random-effects models. **Results:** We identified 7 RCTs comprising a total of 426 patients. Of these, additional unpublished data was obtained on contacting corresponding authors of 5 RCTs. In pooled analysis, minocycline demonstrated a favorable trend towards 3-month functional independence (mRS-scores of 0–2) (RR = 1.31; 95% CI 0.98–1.74, p = 0.06) and 3-month BI (MD = 6.92; 95% CI – 0.92, 14.75; p = 0.08). In AIS subgroup, minocycline was associated with higher rates of 3-month mRS-scores of 0–2 (RR = 1.59; 95% CI 1.19–2.12, p = 0.002; I² = 58%) and 3-month BI (MD = 12.37; 95% CI 5.60, 19.14, p = 0.0003; I² = 47%), whereas reduced the 3-month NIHSS (MD – 2.84; 95% CI – 5.55, – 0.13; p = 0.04; I² = 86%).

Minocycline administration was not associated with an increased risk of mortality, recurrent stroke, myocardial infarction and hemorrhagic conversion. Conclusions: Although data is limited, minocycline demonstrated efficacy and seems a promising neuroprotective agent in acute stroke patients, especially in AIS subgroup. Further RCTs are needed to evaluate the efficacy and safety of minocycline among ICH patients. © 2018, Springer-Verlag GmbH Germany, part of Springer Nature.

SciVal Topic Prominence

Topic: [Stroke | Thrombectomy | anterior circulation](#)

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Reaxys Database Information

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Author keywords

Intracerebral hemorrhageIschemic strokeMinocyclineRecovery

Indexed keywords

EMTREE drug terms:

minocyclineminocyclineneuroprotective agent

EMTREE medical terms:

ArticleBarthel indexcerebrovascular accidentclinical outcomedrug efficacydrug analysisNational Institutes of Health Stroke Scaleneuroimagingpriority journal(topic)Rankin scalestroke patientsystematic reviewbrain hemorrhagebrain ischemia

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Minocycline; Neuroprotective Agents

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