Diabetes mellitus as a clinical predictor in hemorrhagic transformation in acute ischemic stroke patients not treated with thrombolytics: A meta-analysis and systematic review

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Introduction: A hemorrhagic transformation which is not an uncommon complication of ischemic stroke patients is one of the causes of increased morbidity and mortality. Numerous studies have addressed this phenomenon and attempt to know its predictability. Known risk factors for hemorrhagic transformation include old age, large infarct, low cholesterol, cardioembolic stroke, impaired kidney function, coagulopathy, and thrombolytic therapy. Diabetes Mellitus is an established risk factor for hemorrhagic transformation in thrombolytic treated ischemic stroke patients but remains to be investigated in non-thrombolytic treated ischemic stroke patients.

Results: Two prospective cohort and two retrospective case-control studies were obtained. The pooled summary indices showed that for the case-control studies, one study showed an odds ratio of 3.28 (95% CI, 1.26-8.51) and another study showed an odds ratio of 2.52 (95% CI, 1.4-4.52). The case-control studies showed homogeneity with an I² statistics of 0 and a Chi-square of 0.21. For the prospective cohort studies, one study showed a risk ratio of 1.94 (95% CI, 1.04-3.62) and another study showed a risk ratio of 3.34 (95% CI, 1.83-6.09). The prospective studies showed more heterogeneity with an I² statistics of 34% and chi-square of 1.52.

Conclusion: Diabetes Mellitus is a risk factor for hemorrhagic transformation not only in ischemic stroke patients treated with thrombolytics but also with patients not treated with thrombolytics.

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