Cerebrovascular Disease in Rheumatic Diseases: A Systematic Review and Meta-Analysis

In this systematic review and meta-analysis, Wiseman et al explored the incidence and relative risk of stroke in rheumatic diseases when compared with the general population. The authors report on rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), psoriasis, psoriatic arthritis, ankylosing spondylitis, gout, and osteoarthritis. Essentially all conditions were associated with increased risk of stroke of any type, with the exception of osteoarthritis. The highest relative risks were observed with SLE (odds ratio, 2.13) and RA (1.91) and a surprisingly elevated odds ratio of 1.71 was seen with gout. Only SLE and RA were studied extensively enough to allow calculation of risk for stroke subtypes (hemorrhagic vs ischemic). Both conditions were associated with elevated risk of ischemic (odds ratio, 2.11 for SLE and 1.82 for RA) and hemorrhagic (odds ratio, 1.82 for SLE and 1.68 for RA) stroke. The overall pooled risk of stroke for all rheumatic diseases as a whole when compared with the general population was ≈30% higher. Stratification by age showed that this risk is particularly high in those aged <50 years and attenuates with increasing age, becoming insignificant for ages >65 years. The authors postulate that inflammation plays a central pathophysiologic role, which is highlighted by the sharp contrast of risk with RA, a prototypical inflammatory arthritis, (~2-fold risk), with osteoarthritis (no increase in stroke risk). The major shortcomings of this interesting study are the heterogeneity and lack of consistency of stroke reporting, small number of patients and events not allowing for estimation of risk of specific ischemic stroke subtypes. Finally and most importantly, all reported risk ratios are crude, unadjusted for concurrent vascular risk factors, which might have led to overestimation of the contribution of rheumatic conditions in the elevated risk of stroke. See p 943.

Cocaine Use and Risk of Ischemic Stroke in Young Adults

In this case–control study using data from the Stroke Prevention in Young Adults Study, a population-based study was conducted in the greater Baltimore/Washington, DC area; Cheng et al examined the association between cocaine use and ischemic stroke (IS). The authors report on 1090 cases of first-ever IS and 1152 controls aged 15 to 49 years. The study revealed a time-sensitive association between cocaine use and IS. smoking was the method likely to have used cocaine acutely within 24 hours from the index event (and especially within 1–6 hours). Smoking was the method of ingestion with the highest risk of stroke (odds ratio, 7.9). When excluding acute cocaine use, those using cocaine frequently (more than once/week) in the year preceding the stroke still had elevated IS risk, albeit significantly lower (odds ratio 1.9). It should be noted that the study was conducted in 3 phases, and the target population as well as definitions of reference date for controls were different between the first and the last 2 study periods (exclusive recruitment of women and reference date defined as the day of interview during the first phase). When restricting the analysis to the last 2 study phases, the association between cocaine and IS risk remains positive but attenuated (odds ratio, 3.3 versus 6.4 for all 3 study phases). Additionally and most importantly, patients with IS had significantly higher proportion of cardiovascular risk factors (smoking, hypertension, and diabetes mellitus) and when adjusting for those cocaine use loses its independent statistical significance with IS. A last important note is that the agreement between self-report of cocaine use and toxicology results among a subset of cases was moderate (κ=0.65), which indicates some degree of recall bias. See p 918.

Direct Mechanical Intervention Versus Combined Intravenous and Mechanical Intervention in Large Artery Anterior Circulation Stroke: A Matched-Pair Analysis

In this retrospective analysis of patients with anterior circulation ischemic stroke from the Bernese stroke registry, Broeg-Morvay et al examined the effect of bridging with intravenous tissue-type plasminogen activator (tPA) on the outcome of mechanical thrombectomy. Forty patients treated with thrombectomy alone would have met criteria for intravenous tPA and were matched with 40 patients from the group that received bridging intravenous tPA. In multivariate analyses, the authors found no difference in 3-month functional outcome, symptomatic intracerebral hemorrhage, angiographic reperfusion, but those who received bridging tPA had significantly higher mortality (P=0.007) and asymptomatic intracerebral hemorrhage. There are several limitations in this study, which the authors acknowledge and appropriately address: The decision to withhold intravenous tPA in those receiving mechanical thrombectomy alone was made by consensus among the treating physicians and not by randomization, and it was not documented in all cases; this might have introduced unmeasured confounders influencing outcome. Some of the patients received a full-treatment tPA dose (0.9 mg/kg), whereas others a lower (0.6 mg/kg); the authors do not report or comment on whether there was any signal dose-dependent effect. Although every effort was made to match the 2 groups, there were between-group imbalances, most notably a significantly shorter time interval (by ≈30 minutes) between symptom onset and intervention in the mechanical thrombectomy group. It is unclear whether this delay was specifically because of tPA administration or because of other reasons. Overall, the findings of the study can be viewed as hypothesis generating and justify the need for future, prospective randomized studies to specifically address the efficacy of bridging intravenous thrombolysis in patients with stroke undergoing mechanical thrombectomy. See p 1037.
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