Cardiovascular events in ankylosing spondylitis: a 2018 meta-analysis

In an article published in the *Annals of the Rheumatic Diseases*, Schieir *et al*[1] reported a trend of increased cardiovascular risk in patients with ankylosing spondylitis (AS). In this letter, we wish to add data to support the conclusions of that article. We performed an updated meta-analysis to investigate the risks of myocardial infarction (MI) and stroke in patients with AS and controls.

We searched PubMed to find reports of interest, published up to February 2018. We included all observational or case/control studies that reported rates of MI or stroke. We calculated the incidences of MI and stroke in a meta-analysis of proportions (inverse variance method) and expressed them in terms of 100 patient-years (pyrs) of exposure. We used the Mantel-Haenszel procedure to determine the risk ratios (RRs) of MI and stroke.

In the 18 included studies (online supplementary file), 2615 MIs were reported in patients with AS (n=51 660) over a mean follow-up period of 13 years. The incidence was 2.6% (95% CI 1.1% to 4.5%), or 0.18/100 pyrs. Twelve studies revealed the occurrence of 24 472 MIs (mean incidence: 2.0%; 95% CI 1.6% to 2.5%) in control individuals (n=1 735 909). A meta-analysis of 12 longitudinal studies showed a significant increase in the risk of MI (RR=1.44; 95% CI 1.25 to 1.67) in patients with AS compared with controls (figure 1).

In 11 longitudinal studies (n=51 990), 2183 strokes were reported in patients with AS over 14.7 years of follow-up. The incidence was 1.9% (95% CI 0.8% to 3.4%), or 0.18/100 pyrs. Seven studies reported 31 871 strokes in controls (n=1 624 844); thus, the incidence was 2.1% (95% CI 1.2% to 3.4%). A significant increase in stroke among patients with AS compared with controls was found in a meta-analysis of seven studies (RR=1.37; 95% CI 1.08 to 1.73; figure 2).

These results reinforced the conclusions of Schieir *et al*, who found that AS was associated with a significant increase in the risks of MI and stroke. The reasons for this increased cardiovascular risk are probably multifactorial. Systemic inflammation and high disease activity play pivotal roles in increased cardiovascular risk in rheumatic disease. The role of non-steroidal anti-inflammatory drugs remains an issue of debate.[2] Another possible explanation involves the proatherogenic profile of patients with AS who were smokers and/or hypertensive with a poor atherogenic lipid profile. Cardiovascular risk factors and systemic inflammation should be managed in AS to reduce the high cardiovascular risk. Recently, recommendations have been published for improving the cardiovascular risk profile.[3] Compared with our previous meta-analysis, we found a reduction in the prevalence and risk of MI and stroke.[4] This information is encouraging; it might be attributable to improvements in the control of cardiovascular risk in AS. However, efforts must continue because management of cardiovascular comorbidities in rheumatic disease remains insufficient.[5]

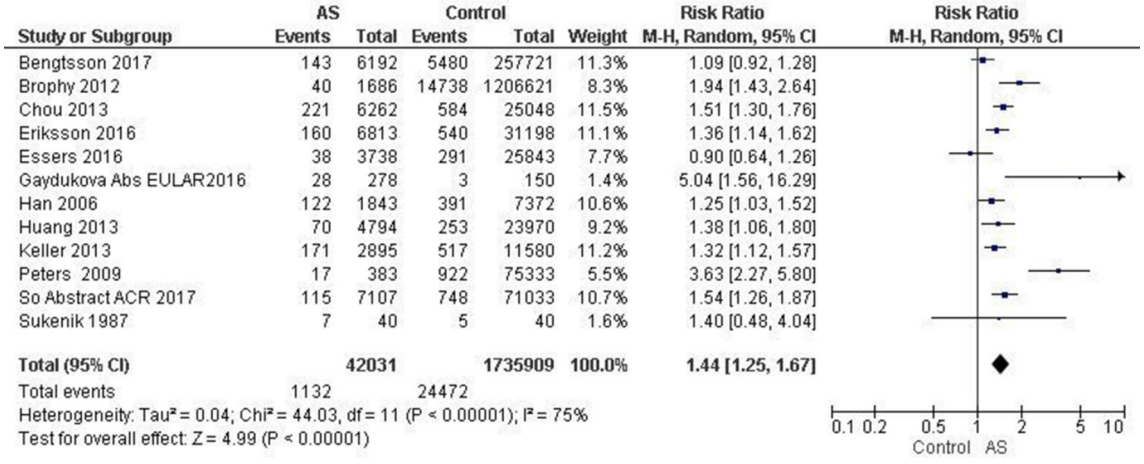

Figure 1 Myocardial infarction risk compared between patients with AS and controls. ACR, American College of Rheumatology; AS, ankylosing spondylitis; EULAR, European League Against Rheumatism; M-H, Mantel-Haenszel.

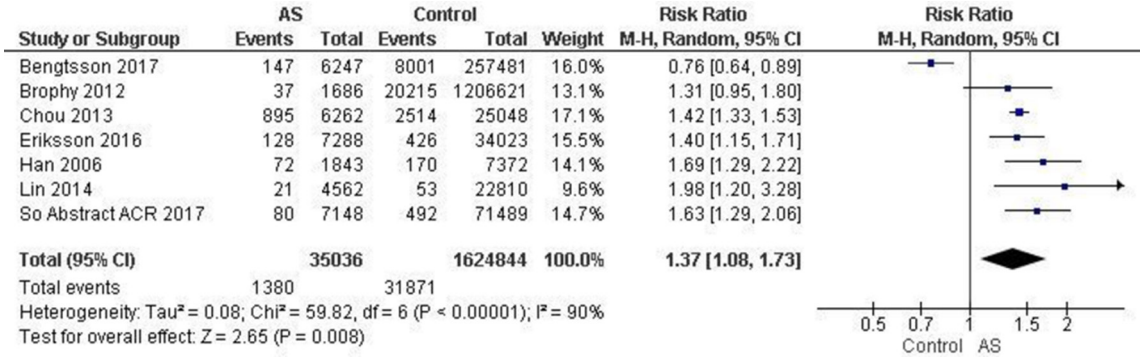

Figure 2 Stroke risk compared between patients with AS and controls. ACR, American College of Rheumatology; AS, ankylosing spondylitis; M-H, Mantel-Haenszel.

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