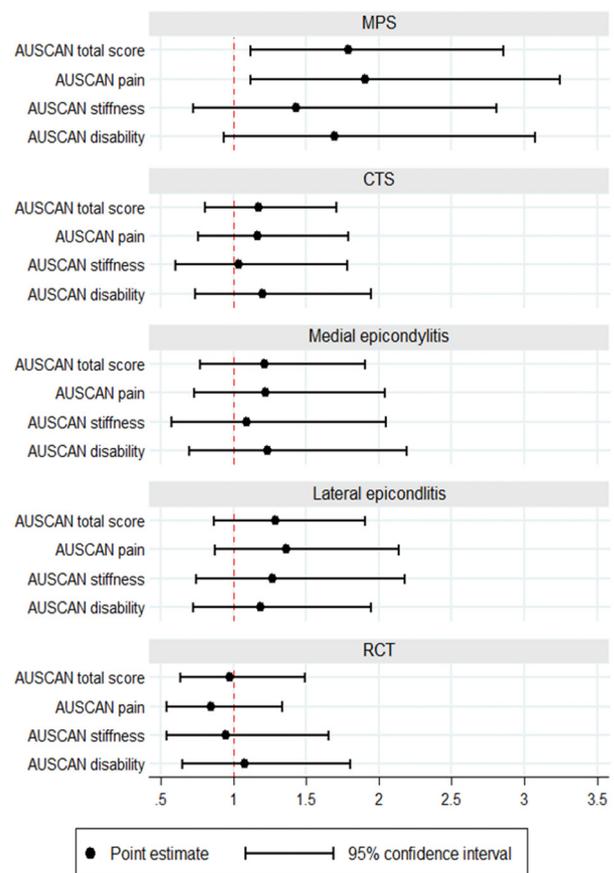


## Correspondence on '2018 update of the EULAR recommendations for the management of hand osteoarthritis'

We were inspired by reading the article entitled '2018 update of the EULAR recommendations for the management of hand osteoarthritis' by Kloppenburg *et al.*<sup>1</sup> This up-to-date guideline will inform all health professionals and patients about optimal management by shared decision-making and may help advance research of hand osteoarthritis (OA). In overarching principles, this recommendation highlighted that the primary goal of managing hand OA is to control pain and stiffness and to optimise hand function and quality of life. This guideline also emphasised that management of hand OA should be individualised, taking into account its localisation and severity as well as comorbidities. The comorbidities should be thoroughly evaluated for individualised management of hand OA. Particularly, systemic diseases such as cardiac disease and/or hypertension, diabetes and depression are commonly accompanied with OA.<sup>2</sup> Apart from systemic diseases, various localised upper extremity musculoskeletal diseases (UEMDs) also contribute to greater pain and poor performance-based physical function in people with hand OA. However, there have been few small studies in which carpal tunnel syndrome (CTS) or rotator cuff tear (RCT) has been commonly associated with hand OA.<sup>3,4</sup> Moreover, no study has examined the effects of accompanying UEMDs on hand pain and function in patients with hand OA. Hence, we comprehensively investigated the influence of various UEMDs on hand pain and functional status in patients with hand OA.

Overall, 311 patients with hand OA participated in this study. All patients underwent physical examination, plain radiography of both hands, MRI of both shoulders and nerve conduction velocity (NCV) examinations of both median nerves to evaluate accompanying UEMDs. Patients also answered the Korean version of the Australian/Canadian (AUSCAN) Osteoarthritis Hand Index and the Patient Health Questionnaire-2 (PHQ-2). The Neck Disability Index (NDI) and disabilities of the arm, shoulder and hand (DASH) scores were also assessed to investigate pain and function of upper extremities. Hand OA diagnoses adhered to the 1990 American College of Rheumatology classification criteria. CTS was confirmed by NCV findings, and RCT was diagnosed by means of MRI findings. Myofascial pain syndrome (MPS) was diagnosed by palpations of myofascial trigger points. Medial and lateral epicondylitis were defined by pain in the epicondyle region, which was provoked by resistance of either the extensor or flexor muscles of the wrist. Patients or the public were not involved in the design, or conduct, or reporting or dissemination plans of our research.

There were 215 women (69.1%) and median age was 61.0 (IQR 56.0–67.0) years. The number of patients with accompanying MPS, CTS, lateral epicondylitis, medial epicondylitis and RCT were 249 (80.1%), 151 (48.6%), 134 (43.1%), 79 (25.4%) and 192 (61.7%), respectively. Analyses were performed using the generalised linear model to determine whether hand pain and function (AUSCAN score) were affected by the presence of each UEMD. In bivariate analysis, women, depression (PHQ-2  $\geq 3$ ) and accompanying MPS showed high AUSCAN pain, stiffness, disability and total scores. After controlling for confounding variables, we obtained the following results (figure 1). We found that only MPS increased the total AUSCAN score (exp(B) (estimated OR) 1.789; 95% CI 1.121 to 2.856,  $p=0.015$ ), which significantly affected the AUSCAN



**Figure 1** The effect of concomitant upper extremity musculoskeletal diseases on pain and functional status of patients with hand osteoarthritis. p value by generalised linear model with gamma distribution and log link function. Adjusted by variables which is p value < 0.05 in bivariate analysis for each model (age, sex, depression). AUSCAN, the Australian/Canadian Osteoarthritis Hand Index; MFPS, myofascial pain syndrome; CTS, carpal tunnel syndrome; RCT, rotator cuff tear.

pain (exp(B) 1.907; 95% CI 1.121 to 3.246,  $p=0.017$ ). CTS, RCT, lateral and medial epicondylitis had no significant effects on AUSCAN scores.

There are two possible reasons why MPS affects hand pain in patients with hand OA. First, central sensitisation of MPS may affect hand pain in patients with hand OA.<sup>5</sup> The relative ischaemia of skeletal muscle would cause elevated levels of sensitising substances and lead to central sensitisation. As a result, the pain threshold is lowered, and pain hypersensitivity is produced in patients with MPS. In this study, other assessment scores of upper extremity pain were significantly increased in patients with MPS — NDI pain scores (exp(B) 1.912 CI 1.063 to 3.440,  $p=0.030$ ) and DASH symptom scores (exp(B) 1.607 CI 1.165 to 2.215,  $p=0.004$ ). Second, the nature of referred pain may affect hand pain in patients with hand OA. MPS produces hyperirritable nodules within taut bands of skeletal muscle known as myofascial trigger points and palpations of these nodules can produce referred pain.<sup>6</sup>

In conclusion, MPS is a common complication and has a significant impact on hand pain in patients with hand OA. Therefore, accompanying MPS needs to be addressed and managed to improve hand pain and function in patients with hand OA.

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