disease indicating multiple effects in lowering inflammation. Even with JAKinibs, it is clear that deep understanding in redundancy of pathways is necessary before considering a particular inhibitor for a trial/experimental therapy.

Successful clinical trials of small molecules in vasculitides will shed new light into pathogenesis, but biologic use requires careful consideration of added risks (infection or malignancy) while effectiveness also means the duration of treatment may be indefinite. Working with SHARE (Single-Hub Access for Pediatric Rheumatology in Europe) or vasculitis foundations will help physicians understand these difficult diseases and in improving patients' lives. ■

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Supplementary material

Additional supplementary material may be found in the online version of this article at www.rcpjournals.org/clinmedicine:
S1 – Use of JAKinibs in vasculitides.

References

1 Hng M, Zhao SS, Moots RJ. An update on the general management approach to common vasculitides. *Clin Med* 2020;20:572–9.
2 Akiyama M, Kaneko Y, Takeuchi T. Tocilizumab for the treatment of polyarteritis nodosa: a systematic literature review. *Ann Rheum Dis* 2020:annrheumdis-2020-218710 [Epub ahead of print].
3 Matsumoto K, Suzuki K, Yoshimoto K *et al*. Significant association between clinical characteristics and changes in peripheral immunophenotype in large vessel vasculitis. *Arthritis Res Ther* 2019;21:304.
4 Kuwabara S, Tanimura S, Matsumoto S *et al*. Successful remission with tofacitinib in a patient with refractory Takayasu arteritis complicated by ulcerative colitis. *Ann Rheum Dis* 2020;79:1125–6.
5 Saadoun D, Garrido M, Comarmond C *et al*. Th1 and Th17 cytokines drive inflammation in Takayasu arteritis. *Arthritis Rheumatol* 2015;67:1353–60.
6 Rimar D, Alpert A, Starosvetsky E *et al*. Tofacitinib for polyarteritis nodosa: a tailored therapy. *Ann Rheum Dis* 2016;75:2214–6.
7 Liu J, Hou Y, Sun L *et al*. A pilot study of tofacitinib for refractory Behçet's syndrome. *Ann Rheum Dis* 2020;79:1517–20.
8 Narazaki T, Shiratsuchi M, Tsuda M *et al*. Intestinal Behçet's disease with primary myelofibrosis involving trisomy 8. *Acta Haematol* 2019;142:253–6.
9 Sanchez GAM, Reinhardt A, Ramsey S *et al*. JAK1/2 inhibition with baricitinib in the treatment of autoinflammatory interferonopathies. *J Clin Invest* 2018;128:3041–52.

A further explanation for chest pain without visible coronary artery disease

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Editor – we read with interest the review and recommendations by Rogers *et al* on how to identify and manage functional cardiac symptoms.[1] The messages resonate with our experiences both on the acute take and in the clinic. The authors refer to 'syndrome x' as an alternative name for non-cardiac chest pain (NCCP) whereby patients have chest pain without evidence of epicardial coronary artery disease. While many cases of chest pain without epicardial coronary disease are non-cardiac in nature, it is increasingly recognised that up to 50% of patients with anginal symptoms, investigated in the catheter laboratory, have symptoms caused by coronary microvascular dysfunction (CMD). This has become known as ischaemia with non-obstructed coronary arteries (INOCA).[2] INOCA can be challenging to diagnose because it is not seen at angiography. It is, therefore, frequently overlooked. This is unfortunate because it is associated with increased risk of cardiac events yet responds to stratified medical therapy.[2,3]

Rogers *et al* describe how medically unexplained symptoms are associated with younger age and female sex, two factors which are also associated with CMD and INOCA.[2,4] Guidelines on investigation and management of INOCA have recently been published by the European Society of Cardiology.[5] We recognise the difficulty faced by clinicians in identifying functional syndromes and that they are highly prevalent. Given the prognostic implications of CMD and the fact that it is a potentially treatable condition, it is important that clinicians consider the diagnosis of INOCA before labelling symptoms as non-cardiac in origin. ■

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References

1 Rogers J, Collins G, Husain M, Docherty M. Identifying and managing functional cardiac symptoms. *Clin Med* 2021;21:37–43.
2 Kunadian V, Chieffo A, Camici PG *et al*. An EAPCI expert consensus document on ischaemia with non-obstructive coronary arteries in collaboration with European Society of Cardiology Working Group on coronary pathophysiology & microcirculation endorsed by Coronary Vasomotor Disorders International. *Eur Heart J* 2020;41:3504–20.
3 Ford TJ, Stanley B, Good R *et al*. Stratified medical therapy using invasive coronary function testing in angina: the CorMicA trial. *J Am Coll Cardiol* 2018;72:2841–55.
4 Sara JD, Widmer RJ, Matsuzawa Y *et al*. Prevalence of coronary microvascular dysfunction among patients with chest pain and nonobstructive coronary artery disease. *JACC Cardiovasc Interv* 2015;8:1445–53.
5 Neumann FJ, Sechtem U, Banning AP *et al*. 2019 ESC Guidelines for the diagnosis and management of chronic coronary syndromes. *Eur Heart J* 2020;41:407–77.

Functional disorders and chronic pain

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Editor – I read the article by Eccles and Davies with great interest.[1] I think they have highlighted well the overlapping issues of chronic pain and fatigue symptoms and the diagnostic overlap between patients with fibromyalgia and myalgic encephalomyelitis / chronic fatigue syndrome (ME/CFS).

I was, however, disappointed to note that there are a number of deficiencies within the article. While they are correct to note that there are multiple referral pathways for patients with chronic pain,

pain clinics within anaesthetic departments across the UK provide significant input into pain management and are often one of the 'last resorts' in the patient treatment pathway.[2,3]

While Eccles and Davies note the presence of cognitive dysfunction in patients with chronic pain conditions, they seem to not acknowledge that chronic pain is a biopsychosocial condition and must be approached as such, as identified within the International Association for the Study of Pain revised definition of pain and the proposed *International Statistical Classification of Diseases and Related Health Problems 11th revision* (ICD-11) classification criteria.[4,5] It is well recognised that psychological contributions to chronic pain and functional conditions are significant.[6,7]

While I applaud the descriptions used by Eccles and Davies to describe various approaches to chronic pain patient management as embraced by different doctors (particularly that used by Dr B), it seems to me that they then proceed further along the biomedical route by exploring hypermobility syndromes, small fibre neuropathy, mast cell activation disorders and inflammatory reactivity. This approach, in my experience, further entrenches 'illness behaviour' and distress among patients with functional chronic pain conditions and fails to approach pain management through a biopsychosocial approach. This then becomes a 'barrier to progress'.[8]

The impact of psychological illness on chronic pain symptom presentation is well recognised and a holistic approach to managing these patients through illness de-escalation and promoting improved self efficacy is, in my opinion, more appropriate. ■

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References

1 Eccles JA, Davies KA. The challenges of chronic pain and fatigue. *Clin Med* 2021;21:19–27.
2 Bridges S. *Health Survey for England 2011*. Health and Social Care Information Centre, 2012;1:291–323.
3 Dr Foster Intelligence, British Pain Society, Healthcare Quality Improvement Partnership. *National Pain Audit Final Report 2010-2012*. HQIP, 2012. www.hqip.org.uk/wp-content/uploads/2018/02/EBfI8i.pdf
4 Treede RD, Rief W, Barke A *et al*. Chronic pain as a symptom or a disease: the IASP classification of chronic pain for the International Classification of Diseases (ICD-11). *Pain* 2019;160:19–27.
5 Raja SN, Carr DB, Cohen M *et al*. The revised international Association for the Study of Pain definition of pain: concepts, challenges, and compromises. *Pain* 2020;161:1976–82.
6 Wiech K, Tracey I. The influence of negative emotions on pain: behavioral effects and neural mechanisms. *Neuroimage* 2009;47:987–94.
7 Henningsen P, Zipfel S, Herzog W. Management of functional somatic symptoms. *Lancet* 2007;369:946–55.
8 Main CJ, Spanswick CC. *Pain management: an interdisciplinary approach*. Churchill Livingstone, 2000.

Response

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Editor – We thank Dr Sawyer for his interest in our paper 'The challenges of chronic pain and fatigue.' It is, of course, implicit in much of what we say that pain and fatigue have a biopsychosocial dimension. We would not otherwise be advocating a multi-professional management strategy involving significant input from mental health professionals, the avoidance of over-investigation and medicalisation and, in our index case, referral to a dedicated pain-management service. The article contextualises the psychological factors implicated from a biological perspective. Several other manuscripts in the edition give the wider psychological framing.

Many conditions present with impairment of both physical and mental health. We feel strongly that in all cases it will be the evolution of a deeper understanding of the biology and pathophysiology of these illnesses, including myalgic encephalomyelitis / chronic fatigue syndrome (ME/CFS) and fibromyalgia, that will in time lead to the evolution of more rationally-based and effective treatment strategies. Moreover, we feel that is it all too frequently the case that labelling a condition as 'biopsychosocial' or 'psychological' leads to negative perceptions among healthcare professionals, and may unfortunately result in physicians abrogating their clinical responsibilities to affected patients, as in our exemplar, Dr A. ■

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SARS-CoV-2 infection despite vaccination: an under-reported COVID-19 cohort

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Editor – West *et al* note the potential challenges presented by SARS-CoV-2 reinfections.[1] We argue that there is a far commoner, yet under-reported, cohort of importance, namely those who have been infected with SARS-CoV-2 after COVID-19 vaccination.

The development of COVID-19 vaccines within an unprecedented short timeframe, resulting in the delivery of the first approved COVID-19 vaccine at University Hospitals Coventry and Warwickshire NHS Trust (UHCW) on the 08 December 2020, represents a step-change in our ability to tackle the current pandemic.[2–4] However, sensible caution is still essential.

We conducted a cross-sectional audit of all COVID-19 swab positive patients at UHCW on the weekend of the 13 February 2021 (excluding intensive care admissions). Remarkably, 27 of the 174 (16%) COVID-19 inpatients had previously received a COVID-19 vaccine. The mean age of these inpatients was 82.3 years (interquartile range (IQR) 11.75), with a mean duration between vaccination and positive COVID-19 swab of 18.19 days (IQR 13.25). Eleven patients (41%) had a positive swab within 14 days of vaccination, suggesting possible infection close to the time of vaccination.