education

FROM THE JOURNALS Edited highlights of weekly research reviews

Replacing aortic valve replacements

Established surgical treatment for people with severe aortic stenosis who have obstructive coronary artery disease is surgical aortic valve replacement (SAVR) and coronary artery bypass grafting (CABG). A new trial, published in the *Lancet*, suggests that transcatheter aortic valve implantation (TAVI) and fractional flow reserve (FFR) guided percutaneous coronary intervention (PCI) may be a better option.

Four of the 91 patients (4%) in the TAVI group of the multicentre European study and 17 of the 77 (23%) in the SAVR group reached the composite primary endpoint of the study of all cause mortality, myocardial infarction, disabling stroke, clinically driven target vessel revascularisation, valve reintervention, and life threatening or disabling bleeding at one year after treatment (hazard ratio 0.17 (95% confidence interval 0.06 to 0.51)). This was in large part due to none of the TAVI group dying during the one year follow-up, compared with seven (10%) in the SAVR group.

Lancet doi:10.1016/S0140-6736(24)02100-7

Advance care planning and interventions in the last months of life

A cluster randomised trial has found that offering patients access to a trained facilitator in advance care planning (ACP) for discussions led to higher rates of new documentation of ACP (12% compared with 6.6% in the control arm). However, this didn't seem to translate into lower levels of medical interventions at the end of life.

The other primary endpoint was receipt of "potentially burdensome care" (including intubation and CPR) within six months of death in a subsample of patients with severe illness who later died. Rates of potentially burdensome care were higher in the ACP intervention arm of the study, showing that engaging in ACP (and documenting it) doesn't necessarily lead to lower levels of medical intervention.

JAMA Intern Med doi:10.1001/jamainternmed.2024.6215

Nudge won't budge

If you can diagnose message overload by the number of WhatsApp groups a person has on mute, then I've definitely got it. Message overload may also be a contributing factor to the negative findings of a trial of text message reminders to help medication adherence. The study randomised over 9000 people taking medication for cardiovascular disease to receive text messages or usual care if they were more than seven days late in picking up a new prescription. There were three intervention arms: a generic reminder message, a behavioural nudge, or a behavioural nudge and a chatbot. They found no difference in the "proportion of days covered" by prescriptions over a one year period in the three text message groups compared with usual care. By measuring prescriptions over a year long period, the study was able to assess the longer term behavioural impact of the nudges, which over time may have become just another message to ignore.

JAMA doi:10.1001/jama.2024.21739

Trigger warning for emergency departments

Speaking of ignoring messages, can someone do a study to quantify how many popup alerts you have to over-rule or ignore to get through a day of seeing patients? A new study in *JAMA Internal Medicine* on electronic triggers (e-triggers) isn't even about these popups, but it was enough to trigger me. It looks at e-triggers and their potential to be applied retrospectively to look for possible missed diagnoses.

Researchers created e-triggers for six high risk presentations and found that there were lots of missed opportunities in diagnosis (so called MODs) when they applied these to patient records. For example, from a sample of 625 records 47 MODs for stroke and 31 MODs for abdominal pain were found, and 20 patients had experienced severe harm from the MOD.

JAMA Intern Med doi:10.1001/jamainternmed.2024.6214

Drug diversion for non-medical use

A 2018 systematic review concluded that there is "little or no organized criminal involvement in the pharmaceutical black market" and that pharmaceutical drugs for non-medical use are mostly obtained through friends and family. But how does ketamine, which is licensed in the UK only as an anaesthetic, find its way into the wrong hands?

A research letter in *JAMA* sheds light on the growing levels of pharmaceutical ketamine diversion in the US. There were 230 reported incidents in 2023 up from 195 in 2017, mostly occurring in hospitals and clinics, and usually stolen by employees or lost in transit.

JAMA doi:10.1001/jama.2024.23014

Tom Nolan, clinical editor, *The BMJ*, London; sessional GP, Surrey

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Surgery is better than nasal sprays for people with severely blocked airways caused by septal deviation

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The study

Clinical effectiveness of septoplasty versus medical management for nasal airways obstruction: multicentre, open label, randomised controlled trial

Carrie S, O'Hara J, Fouweather T, et al

BMJ 2023;383:e075445

CPD READING 0.5 HOURS

Why was the study needed?

A deviated septum can make breathing through the nose difficult and can cause trouble sleeping.

People can be treated with nasal sprays to reduce inflammation, or with surgery to straighten the septum (septoplasty). Surgery is common; surgeons in England performed around 16 700 procedures between 2019 and 2020. But evidence to support septoplasty is lacking and some local guidelines recommend trying medical treatment before surgery.

This randomised controlled trial compared nasal sprays with surgery.

What did the study do?

The study included 307 adults with moderate to severe nasal blockage caused by a deviated septum. They were treated at 17 UK hospitals in all. Most participants were male (67%), white (88%), and had severe or extreme (84%) symptoms (the population most likely to be referred to secondary care). Fewer (16%) had moderate symptoms. Half (152) were assigned to surgery; half (155) to nasal spray.

Participants recorded their symptoms and quality of life before they started treatment, at six months, and at 12 months. A nine point difference in scores was considered meaningful.

What did it find?

At six months, people who had septoplasty:

- Had improved symptoms, including thick mucus and the need to blow their nose (20 points) compared with those in the nasal spray group (40 points)
- Had more improvements in both physical and mental quality of life than people in the nasal spray group (this was a secondary outcome).

People with the most severe symptoms before treatment showed most improvement. Those with moderate symptoms were less likely to benefit meaningfully from septoplasty, but they tended to improve over time with nasal sprays.

Breathing tests and symptom surveys continued to favour surgery over nasal sprays at one year but the difference was less.

Symptoms in the septoplasty group remained the same (21 points) but were reduced in the nasal spray group (to 30 points). However, half those in the nasal spray group (37) had chosen to have surgery.

Serious adverse events were uncommon (14 in the septoplasty group; nine in the nasal spray group). These included re-admission to hospital because of bleeding, and infections that needed antibiotics.

Why is this important?

The study found that septoplasty led to more improvements in symptoms after six months than nasal sprays. At one year, the difference was less but still meaningful. The researchers suggest that septoplasty is an effective option for people with a deviated septum that causes severe symptoms, but with no other nasal or sinus disease.

People with extreme symptoms benefited from surgery; those with moderate symptoms benefited less. Therefore, the researchers suggest that clinicians and patients discuss the likely benefits of surgery (based on the severity of symptoms) before deciding on treatment.

What's next?

The NHS England initiative "Getting it Right First Time," which presents an evidence base to support change and improve patient care, is exploring septoplasty. The procedure typically has a long NHS waiting list, the researchers say.

Competing interests: *The BMJ* has judged that there are no disqualifying financial ties to commercial companies.
Further details of other interests, disclaimers, and permissions can be found on bmj.com

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STATE OF THE ART REVIEW

Advances in the management of psoriatic arthritis in adults

CPD READING
0.5 HOURS

Fadi Kharouf,[1 2] Dafna D Gladman[1 2]

Full author details on bmj.com

Correspondence to: D D Gladman dafna.gladman@utoronto.ca

This is a summary of Clinical Review *Advances in the management of psoriatic arthritis in adults*. The full version can be read here: https://www.bmj.com/content/387/bmj-2024-081860

Psoriatic arthritis is an immune mediated inflammatory musculoskeletal disease affecting around 30% of patients with psoriasis. Most patients with psoriatic arthritis develop psoriasis before or simultaneously with joint involvement. The disease comprises several domains, including peripheral arthritis, enthesitis, dactylitis, axial disease, and skin and nail psoriasis.[1] It may also be associated with several comorbidities, including obesity, metabolic syndrome, cardiovascular disease, anxiety, and depression.[2] Psoriatic arthritis was recognised as a distinct entity owing to the efforts of Moll and Wright.[3] Although it was initially thought to be a mild disease, more recent studies have shown that patients with psoriatic arthritis can develop significant joint damage.[1]

CASPAR classification criteria for psoriatic arthritis[7]	
Inflammatory articular disease (joint, spine, or entheseal) with ≥3 points of the following:	**Points**
Current psoriasis	2
Personal or family history of psoriasis	1
Psoriatic nail dystrophy on current physical examination	1
Negative test for rheumatoid factor	1
Current dactylitis or history of dactylitis documented by a rheumatologist	1
Radiographical evidence of juxta-articular new bone formation	1

WHAT YOU NEED TO KNOW

- Psoriatic arthritis is an immune mediated inflammatory musculoskeletal disease affecting around 30% of patients with psoriasis. Most patients with psoriatic arthritis develop psoriasis before or simultaneously with joint involvement
- The disease spectrum includes peripheral arthritis, enthesitis, dactylitis, axial disease, and skin and nail psoriasis
- In addition to the cutaneous and musculoskeletal manifestations, associated comorbidities can complicate the disease course, including cardiovascular disease, diabetes mellitus, metabolic syndrome, gout, anxiety, and depression
- There have been breakthrough advances in the management of psoriatic arthritis over the past two decades. The approach to treatment begins with a comprehensive assessment of the skin and joints, and may include lifestyle modifications as well as drugs for symptomatic relief, conventional synthetic disease modifying anti-rheumatic drugs (DMARDs), biologics, and targeted DMARDs

Epidemiology

Psoriatic arthritis has an annual incidence of 2.7-3.2% in patients with psoriasis, with no prominent sex predominance.[4] It affects 0.1-1% of the general population and 6-42% of patients with psoriasis[5 6]; the reported prevalence varies depending on the study design and geographic location.[2] Since the classification criteria for psoriatic arthritis (CASPAR)[7] were published (table), more consistent estimates of 30% of patients with psoriasis developing psoriatic arthritis have been reported.[5 8] In most patients, the onset of skin disease precedes that of arthritis by an average of 10 years.[1] However, in about 15% of the cases, the skin and joint manifestations appear simultaneously[9]; in 7-20% of cases, arthritis precedes the skin disease.[9 10] Potential risk factors for the development of psoriatic arthritis in patients with psoriasis include nail dystrophy, obesity, trauma, and severe psoriasis, among others.[2]

Clinical features

Initial descriptions of psoriatic arthritis identified five clinical patterns among patients with psoriatic arthritis: a distal predominant pattern affecting primarily the distal interphalangeal joints; an oligoarticular asymmetrical arthritis often affecting the joints of the lower extremities; a polyarticular rheumatoid arthritis-like pattern; predominant spondylitis; and arthritis mutilans, a very destructive form of arthritis. However, although these patterns may be observed at presentation, they do not persist.[14]

Many patients presenting with oligoarthritis develop polyarthritis. Likewise, patients may present with axial disease but subsequently develop peripheral arthritis, and patients may present with distal involvement and then develop proximal disease; arthritis mutilans can occur with any of the peripheral patterns.[15] For that reason, the Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) defined the six domains of the disease[16]: peripheral arthritis, dactylitis, enthesitis, axial involvement, skin disease, and nail psoriasis.

Arthritis presents as inflammatory joint pain, often accompanied by swelling. Notably, a unique feature of psoriatic arthritis is the occasional presence of a purplish discoloration over the affected joint. The distribution of joint involvement may be monoarticular, asymmetric oligoarticular, or polyarticular; these patterns commonly merge along the disease course. Severe destructive cases may manifest as the so called arthritis mutilans.

Dactylitis, or inflammation of the whole digit, occurs in almost 50% of patients.[17] Often, all joints of the digit are inflamed, as well as the tendons and soft tissue structures. Enthesitis, or inflammation at the insertion of tendons and ligaments into bone, occurs in more than 40% of patients. The most common sites are the insertion of the Achilles and plantar fascia into the calcaneus.[18]

Axial disease is often associated with inflammatory-type back pain, although not as frequently or severely as in ankylosing spondylitis.[19] Isolated axial disease occurs in up to 4% of patients with psoriatic arthritis, but most of the 25-70% who have spinal involvement also have peripheral disease. Compared with axial spondyloarthritis, axial psoriatic arthritis usually presents at an older age, with a lower male predominance.

Skin manifestations

Skin psoriasis occurs in almost all patients with psoriatic arthritis, although some may first present with joint manifestations.[1] Nail lesions are more common among patients with psoriatic arthritis than in patients with psoriasis without arthritis, and they have been recognised as a predictor of the development of psoriatic arthritis.[4] Nail lesions occur in about 80% of patients with psoriatic arthritis. Appreciating the different domains of psoriatic arthritis is important, as they all need to be assessed in each patient and managed accordingly.

Extra-musculoskeletal manifestations

Patients may have extra-musculoskeletal manifestations. These include the presence of mucous membrane lesions, which may occur in 5-10% of patients; uveitis, which affects 8% of patients[21]; inflammatory bowel disease, which occurs in 5% of patients; and, rarely, aortic root dilatation. These manifestations are common to all forms of spondyloarthritis, and psoriatic arthritis is classified among this group.

Radiographical findings

Radiographs can aid in the initial assessment of patients with psoriatic arthritis, as they may show typical disease features such as erosions, periosteal bone proliferation, tuft resorption, enthesophytes, and, in severe cases, pencil-in-cup deformities, subluxations, and ankylosis; erosive and bone proliferative changes can also appear in the sacroiliac joints and along the spine. Notably, ultrasonography and magnetic resonance imaging (MRI) scans provide better assessment of the joints and surrounding soft tissue, such as in cases of enthesitis, tenosynovitis, and dactylitis; MRI is extremely useful in the evaluation of axial disease.

Comorbidities

Psoriatic arthritis does not just affect the skin and joints but is also associated with several comorbidities. Most prominent is cardiovascular disease, which is also a major cause of death.[22] The cumulative probability of developing cardiovascular disease is 20% by age 70 and 30% by age 80.[23] The risk of cardiovascular disease was markedly increased in a meta-analysis of 11 studies including 32 973 patients (pooled odds ratio 1.43, 95% confidence interval (CI) 1.24 to 1.66).[24] Inflammation is associated with the extent of the atherosclerotic disease burden as detected by carotid ultrasonography.[25]

Diabetes mellitus is more common in patients with psoriatic arthritis than in the general population,[26] which further increases the cardiovascular risk. Risk factors for development of diabetes mellitus in patients with psoriatic arthritis include elevated measures of disease activity such as the tender joint count and erythrocyte sedimentation rate (ESR), severity of psoriasis, and dactylitis count.[27] Metabolic syndrome is also associated with psoriatic arthritis. In one study of 283 patients, 44% had evidence of metabolic syndrome.[28] This was significantly associated with disease severity, smoking, and worse quality of life. Interestingly, some evidence suggests that weight loss can ameliorate pre-existing psoriasis and psoriatic arthritis and even prevent the onset of psoriasis in obese patients.[29]

Liver abnormalities were detected in 32% of patients with psoriatic arthritis and were associated with more severe disease, higher body mass index, and use of methotrexate and anti-TNFα agents; drug induced hepatitis and fatty liver disease were the most common causes.[30] Depression and anxiety are also prevalent among patients with psoriatic arthritis, more so than in patients with psoriasis alone, and are associated with disease related features.[31] Moreover, patients with psoriatic arthritis also have a high frequency of hyperuricaemia; one third of patients in one study had hyperuricaemia, whereas only 3.4% had evidence of gout.[32] Hyperuricaemia was associated with more severe psoriasis and obesity. Importantly, many of these comorbidities are associated with disease activity and severity, which affects the choice and success of therapeutic interventions.

Prognosis

Although arthritis mutilans was recognised as a distinct pattern of psoriatic arthritis, the severity of the disease as a whole was not recognised until the past few decades, when it was linked to progressive joint damage, impaired function, and reduced quality of life.[1] Risk factors for the development and progression of damage include inflammatory disease activity at baseline and at each visit, as well as the presence of existing damage.[33] HLA genes were also found to have prognostic significance in disease progression. Whereas *HLA-B*22* is protective, *HLA-B*27* (in the presence of *HLA-DR*7*), *HLA-B*39*, and *HLA-DQw*3* (in the absence of *HLA-DR*7*) are predictive of subsequent damage.[34]

Psoriatic arthritis is associated with an increased mortality risk.[35] Risk factors for early mortality include evidence of previously active and severe disease, as reflected by the previous use of medications and radiological changes, as well as high ESR at presentation to the clinic.[35] Psoriatic arthritis should be diagnosed and treated early. Several studies have shown that late presentation, and therefore treatment, is associated with detrimental outcomes.[36-38]

Assessment and outcome measures

The assessment of patients with psoriatic arthritis must include all the domains of the disease, as they all need to be considered in the creation of a therapeutic plan. The assessment of peripheral joints is based on the number of tender and swollen joints; 68 joints for tenderness and 66 joints for swelling (excluding the hip joints) should be included. This is the recommended joint count by Outcome Measures in Rheumatology (OMERACT) and GRAPPA.[39]

Peripheral arthritis

On the basis of the actively inflamed (swollen or tender) joint count, two outcome measures are available for peripheral arthritis. The first is the American College of Rheumatology 20% (ACR20) response, which was initially developed for rheumatoid arthritis but has been used as the primary outcome measure in most clinical trials in psoriatic arthritis.[40] For a patient to be considered a responder, the tender and swollen joint counts must decrease by at least 20%, as well as ≥20% reduction in three of five additional items, including patient assessment of pain, patient's global assessment of disease activity, physician's global assessment of disease activity, patient's assessment of physical function, and an acute phase reactant (C reactive protein (CRP) or ESR). In more recent trials, the primary outcome has been a second measure, the ACR50, for which a 50% reduction is required for a patient to be considered a responder.

Disease activity in psoriatic arthritis

The disease activity in psoriatic arthritis (DAPSA) score was developed specifically for patients with psoriatic arthritis. It provides a continuous score based on the tender (n=68) and swollen (n=66) joint counts, patient's assessment of pain, patient's global assessment, and CRP. Patients can be classified as having high, moderate, or low disease activity or remission on the basis of the total score. Many clinical trials have included the DAPSA as a secondary outcome measure.

Dactylitis

The assessment of dactylitis is based on the number of swollen digits and the demonstration of tenderness in these digits. In recent clinical trials, the Leeds Dactylitis Index, which measures digital swelling using a dactylometer, has been used.[41]

Axial disease

Axial disease is assessed at the bedside by cervical and lumbar spine lateral flexion, chest expansion from full expiration to full inspiration, and the Schober test measuring forward flexion of the lumbar spine.[42] Axial disease activity has been assessed in clinical trials by the Bath Ankylosing Spondylitis Disease Activity Index (BADAI) or the Ankylosing Spondylitis Disease Activity Score (ASDAS).[43 44]

Enthesitis

Tenderness at the insertion of tendons and ligaments into bone is examined by applying pressure at the site of insertion. Two instruments have been routinely used to record enthesitis: the Leeds Enthesitis Index, which records tenderness at six sites,[45] and the Spondyloarthritis Research Consortium Canada enthesitis index,[46] which includes 18 sites.

Skin and nail disease

The assessment of skin disease is of paramount importance. It can be measured by the body surface area (BSA), whereby the extent of psoriasis is assessed on the basis of the number of palms that cover the areas affected by psoriasis (each palm is considered to be 1% BSA) or by the Psoriasis Area Severity Index (PASI), which accounts for the degree of erythema, induration, and scaling in four separate areas of the body—the head, the trunk, and the upper and lower extremities. Both BSA and PASI have been used in clinical trials.

Nail disease in psoriatic arthritis is assessed using the Nail Assessment of Psoriasis Index (NAPSI), which records the presence of nail bed and matrix lesions, including onycholysis, hyperkeratosis, pitting, and leuconychia, among others.

Composite measures of disease activity

In addition to the individual domain assessment, composite measures of disease activity have been developed and are increasingly used in clinical trials.

Treat-to-target approach

When treating psoriatic disease, clinicians should aim to reach a predefined state of disease control, with consideration of the various domains. Although the goal of therapy is to achieve remission, no well accepted and validated definition of remission is yet available for psoriatic arthritis. Moreover, even if one defines remission as the "absence of disease activity," the frequency of such a state is low, occurring in 18% of patients at one visit and only 9% on two to three subsequent visits.[52] Therefore, states of low disease activity are alternative targets.

Treatment

Non-pharmacological interventions

The first step in the management of patients with psoriatic arthritis is education. Patients need to appreciate that controlling inflammation, and thereby alleviating symptoms, is of paramount importance not only to prevent joint damage but also to prevent the development of comorbidities associated with the disease.

Despite the absence of high level evidence on non-pharmacological interventions in psoriatic arthritis, we generally advise regular exercise, weight reduction, and other lifestyle changes such as stopping smoking, avoiding excess alcohol intake, and sleep hygiene.

PATIENT WITH DIAGNOSIS OF PSORIATIC ARTHRITIS

- Define the extent of the disease: What are the active domains (joints, skin, nails, enthesis, dactylitis, axial disease)?
- Are any extra-articular disease manifestations present (active psoriasis, inflammatory bowel disease, uveitis)?
- Are comorbidities present (metabolic syndrome, non-alcoholic fatty liver disease, anxiety, depression, etc)?

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- Obtain baseline tests, including FBC, kidney and liver function tests, CRP, ESR, rheumatoid factor, *HLA-B*27*
- If systemic therapy is needed, obtain serology for HBV and HCV and start tuberculosis screening as accepted per local guidelines
- Obtain appropriate imaging
  - Radiographs for bony changes. Baseline radiographs of the wrists, hands, feet, cervical and lumbar spine, and pelvis recommended
  - Ultrasonography, preferably in the clinic, for enthesitis/synovitis/tenosynovitis/peritenonitis
  - MRI as needed, especially for axial disease

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Drug therapy:

- Verify absence of contraindications to specific therapy (eg, advanced kidney disease and NSAIDs)
- Define the mechanism and origin of pain (inflammatory versus non-inflammatory). Use painkillers and NSAIDs as needed
- May use local corticosteroid injections. Avoid systemic use
- Per local guidance, disease domains, extra-articular manifestations, and comorbidities, start systemic therapy
- Methotrexate is most commonly used as the first line csDMARD
  - In case of axial disease: NSAIDs, followed by advanced therapy as needed, including anti-TNF, anti-IL-17, and JAK inhibitors
  - For musculoskeletal manifestations, excluding axial disease: anti-TNFα, anti-IL-17, anti-IL-12/23, anti-IL-23, PDE4 inhibitor, or
    JAK inhibitor; we generally favour anti-TNFα in severe joint disease as first line, but no solid recommendations regarding the order
  - For skin disease (including nails): anti-TNFα, anti-IL-17, anti-IL-12/23, anti-IL-23, and PDE4 inhibitor; anti-TNFs are less effective for severe skin disease; we prefer not to use PDE4 inhibitor monotherapy in severe skin disease
  - Uveitis/IBD: Important to consider. For uveitis, we favour the use of mAb anti-TNF, specifically adalimumab and infliximab; for concomitant IBD, avoid anti-IL-17, and depending on whether Crohn's disease or ulcerative colitis, use approved anti-TNFα, anti-IL-12/23, anti-IL-23, and JAK inhibitors
  - For severe disease and multiple failures of advanced therapy, especially with more than one active domain, consider dual therapy
  - Consider biosimilar therapy per local legislations

Non-drug therapy:

Physiotherapy, physical activity, mindfulness, healthy diet (preferably Mediterranean), smoking cessation, weight loss, and refreshing sleep.

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Important caveats:

- Follow-up every 3-6 months, depending on disease activity. At initial stages, may need closer follow-up; at stages of disease remission, may even consider less frequent visits
- Interdisciplinary care. Take management decisions with the patient and other caring physicians
- Do not judge treatment failure early, give 3-6 months on average for systemic therapy
- Differentiate disease activity from damage, degenerative disease, and chronic pain
- Follow-up blood tests periodically (3-12 months, per patient's clinical profile) and follow age related screening measures
- Encourage patients to enroll in patient education groups
- Always ask about treatment adherence and quality of life

Algorithm of practical approach to patients with psoriatic arthritis in clinical practice. CRP=C reactive protein; ESR=erythrocyte sedimentation rate; FBC=full blood count; HBV=hepatitis B virus; HCV=hepatitis C virus; HLA=human leucocyte antigen; MRI=magnetic resonance imaging; NSAID=non-steroidal anti-inflammatory drug; csDMARD=conventional synthetic disease modifying anti-rheumatic drug; TNFα=tumour necrosis factor; IL=interleukin; JAK=Janus kinase; mAb=monoclonal antibody; PDE4=phosphodiesterase-4

We also recommend physiotherapy and occupational therapy for patients with stiffness and articular limitations, as well as appropriate pain management. Although evidence in spondyloarthritis is less robust than in rheumatoid arthritis, we also recommend mindfulness based stress reduction programmes, yoga, Tai Chi, and relaxation, which seem to ameliorate patients' symptoms and improve reported outcomes.[56] In a randomised controlled trial implementing self-help interventions in 130 patients with psoriasis (including patients with psoriatic arthritis), approaches based on compassion and mindfulness were found to reduce feelings of shame and improve quality of life.[57]

Drug therapy

The treatment of psoriatic arthritis requires attention to the active domains present in each patient. If the major active domain is peripheral arthritis, treatment usually begins with non-steroidal anti-inflammatory drugs (NSAIDs). However, if a patient has a contraindication then NSAIDs should be avoided. In this situation, pain medication may be prescribed instead. Of note, no evidence is available for the efficacy of NSAIDs in psoriatic arthritis, and no reason exists to prefer a specific NSAID.

If these drugs fail to control disease activity, a conventional synthetic disease modifying anti-rheumatic drug (csDMARD) is usually prescribed, most commonly methotrexate. Evidence on the efficacy of methotrexate mostly comes from widespread experience and observational studies.[69-72] Despite contrasting results in clinical trials, the drug is included in all treatment recommendations and guidelines owing to its demonstrated effectiveness in real world settings, as well as recognised limitations in trial designs.[73-75] Leflunomide and sulfasalazine have also been used in the management of peripheral joint disease.[49] European Alliance of Associations for Rheumatology (EULAR) guidelines on the management of psoriatic arthritis with drug therapies recommend that if patients do not achieve a satisfactory response within three months of starting a csDMARD, treatment should be escalated and advanced therapies should be considered.[76]

Head-to-head studies

Several head-to-head studies were carried out in psoriatic arthritis. For instance, in the SPIRIT-H2H trial,[116] ixekizumab was superior to adalimumab in achieving simultaneous improvement of joint and skin disease (ACR50 and PASI100) at week 24 (36% *v* 28%; P=0.04) in 566 patients with psoriatic arthritis and inadequate response to csDMARDs. Looking more closely, the drug was non-inferior for the ACR50 response (ixekizumab 51%; adalimumab 47%; treatment difference 3.9%) and superior for the PASI100 response (ixekizumab 60%; adalimumab 47%; P=0.001). The EXCEED trial,[117] on the other hand, evaluated the efficacy and safety of secukinumab versus adalimumab for 52 weeks in 853 patients with active psoriatic arthritis, with an ACR20 response as the outcome. Although secukinumab did not meet statistical significance for superiority versus adalimumab, it was associated with a higher treatment retention rate. The results of these two studies show the superior skin response and comparable joint response with anti-IL-17 agents compared with anti-TNFα biologics; the SPIRIT-H2H trial met its primary outcome and the EXCEED trial did not, which is likely related to the design and outcome selection.

HOW PATIENTS WERE INVOLVED IN CREATION OF THIS ARTICLE

We asked five randomly selected patients attending the clinic about the most important topics to be covered in this review. The answers were focused on clinical presentation, diagnostic evaluation, and advances in therapy. We included all these topics.

Practical algorithm

Clinicians should combine their clinical knowledge, revised guidelines, and available resources to provide the best care possible for the individual patient. This process begins with diagnosing psoriatic arthritis on solid grounds, defining the disease extent, and determining the involved domains and associated extra-articular features and comorbidities. Therapies should be considered, incorporating local legislations and an interdisciplinary approach that is focused on the management of the patient and not only on treating active disease. The figure provides a practical algorithm that we recommend using when managing a patient with psoriatic arthritis.

Unmet needs

Despite the advances achieved in the field of psoriatic arthritis, several unmet needs remain. These include reliable markers for diagnosis and prediction of response to therapy. Additionally, well accepted and standardised definitions are lacking for axial disease, a treat-to-target approach, remission state, and difficult-to-treat disease. Evidence is scarce in several other fields, including drug tapering and withdrawal, safety and efficacy of dual advanced therapy, and the role of biologics in the prevention of progression of psoriasis to psoriatic arthritis.

Guidelines

The overall concept is similar in the various guidelines, aiming at the initiation of systemic therapy for the rapid control of disease activity and escalated therapy based on the disease manifestations and involved domains. These recommendations and guidelines should be used by clinicians as an important adjunct when making treatment decisions; however, ultimately, therapy should be selected on the basis of the specific patient's clinical profile, disease history, and preferences, as well as local legislation, which may not always align with the guidelines.

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WHAT YOUR PATIENT IS THINKING

Giving CPR left me seeking reassurance

CPD READING
0.5 HOURS

Lynsey Duncan describes giving cardiopulmonary resuscitation (CPR) to a family member at home, and her difficulties in coming to terms with the experience

Friday 5 November 2021 was just another day until I got the phone call that would change all of our lives. My father in law had collapsed at home in the family bathroom. I arrived within five minutes of that call to find him slumped against the bathroom wall with laboured breathing and no pulse. I immediately started to perform chest compressions.

At first, I was scared I was going to hurt him. I worried that I would break his ribs. I am sure this prevented me from giving effective compressions. I went into autopilot but as the minutes went on it felt like I was observing the situation rather than participating in it. I was listening for my husband to arrive and thinking, he cannot see me do this to his dad, how will he cope without his dad, and how am I going to tell my girls that they have lost their Granda? Yet in the background I was aware of my mother in law pacing the hall saying he wouldn't want this. Maybe we should stop. It was surreal.

Questions that followed

I knew in my heart that John was not going to survive but I had to keep going until help arrived. I was exhausted and I knew that my chest compressions would be ineffective by this time. I can still hear myself shouting, "Come on John, come on Granda" to no effect. It took the paramedics and other first responder more than 20 minutes to arrive (we are in a rural setting). Everything had felt quite numb through it all, but the minute the emergency services arrived I was hysterical. All I could say was that I was sorry. It was my fault, but I had tried really hard.

The police attended as this was a sudden death and they asked me if I had done mouth-to-mouth resuscitation or just chest compressions. This innocent question was one that I would go over and over again in the following months, questioning whether I had done everything I could. During this time no one asked if I was OK or gave me any information on where I might find support to process all I had been through. I just wanted to be able to talk through my actions and get some reassurance. I blamed myself completely.

Processing alongside grief

Everyone around me was grieving so I felt unable to share my feelings with family at that time. I wish there had been outside support that enabled me to speak to someone who was not emotionally involved in what happened. I have since learnt about Chest Heart & Stroke Scotland's advice line, Out of Hospital Cardiac Arrest. This service provides support for anyone who has either witnessed or participated in an out-of-hospital cardiac arrest. The advice line team offers a listening ear if you want to talk through the event and can debrief with you if you wish. It would have really helped me to know there was always someone at the end of a phone. It would have given me confidence on my darker days.

lynsey.duncan@chss.org.uk

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Lynsey Duncan is deputy head of clinical services at Chest Heart & Stroke Scotland.

PRIYA SUNDRAM

WHAT YOU NEED TO KNOW

- Having to give CPR can leave a family member with guilt, wondering about what might have happened, and that it might happen again
- Processing what has happened can take time and is often mixed up with grief. It is never too late to offer a listening ear
- It is important to share any information on where individuals can find information or support after they have been involved in delivering CPR away from a hospital

EDUCATION IN PRACTICE

- How could you support someone who has had to give CPR in the community?
- When might you offer support to someone who has had to give CPR?
- Who might be able to support a friend or family member who has had to give CPR?

ADDITIONAL INFORMATION

- CHSS Advice Line (available to anyone based in Scotland)
- https://www.resus.org.uk/ (support available to everyone)

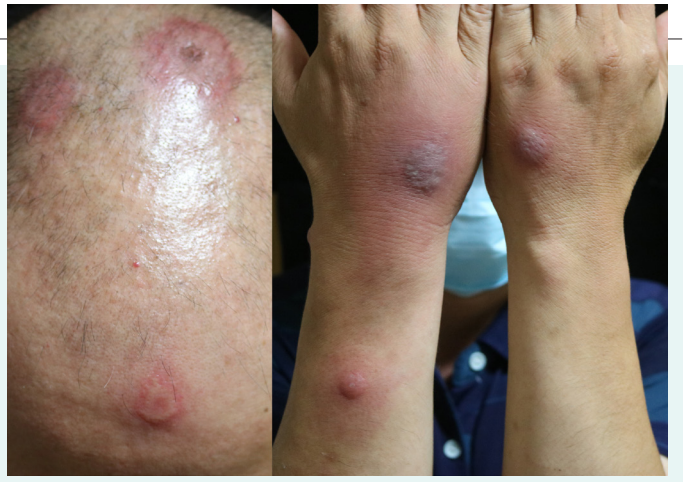
CASE REVIEW

Tender erythematous plaques with fever

A man in his 50s was referred to a community hospital with a 15 day history of fever (38.5°C) and a one week history of painful cutaneous eruptions on his forearms and the crown of the scalp. Before this he had a three month history of abdominal pain and diarrhoea, and a one month history of 3 kg weight loss, but did not seek medical care at that time.

The patient underwent blood tests, the results of which showed neutrophilia and raised C reactive protein. The patient was started on an empirical oral cephalosporin for one week, but showed no improvement.

On presentation to our clinic, physical examination identified tender oedematous erythematous plaques with a pseudovesicular appearance on the head and dorsal aspect of his forearms and hands (figure). Repeat laboratory investigations showed an increased neutrophil count of 14.37×10^9/L (2.00-7.00×10^9/L), a serum C reactive protein level of 147.36 mg/L (0.00-8.00 mg/L), and an erythrocyte sedimentation rate of 86 mm in the first hour (0.00-15.00 mm in the first hour). Histopathology of a skin biopsy from a lesion on the left forearm demonstrated oedema in the superficial dermis and predominant neutrophilic infiltrate in the dermis. In view of the gastrointestinal symptoms, a colonoscopy was performed, which showed obvious erythema, mild erosion, and loss of normal vascular pattern at the rectum, indicative of ulcerative colitis.



Erythematous plaques with pseudovesicular appearance on the scalp (left), dorsal aspect of his forearms, and hands (right)

1 What are the differential diagnoses?

2 What is the most likely diagnosis?

3 What is the management of this condition?

Submitted by Changyi Yang and Jianjun Qiao

Patient consent obtained.

Cite this as: *BMJ* 2024;387:e076856

answers

CASE REVIEW **Tender erythematous plaques with fever**

1 What are the differential diagnoses?

Differential diagnoses include conditions that present with painful erythematous plaques and nodules including pyoderma gangrenosum, erythema nodosum, eosinophilic cellulitis, and Sweet's syndrome.

Pyoderma gangrenosum presents with painful papules and rapidly develops to ulcers with undermined borders and peripheral erythema. Erythema nodosum is a form of panniculitis with tender erythematous and subcutaneous nodules without ulcers usually on the extensor surfaces of the legs. Eosinophilic cellulitis is an inflammatory dermatosis with erythematous, tender plaques, possibly with vesicles and bullae. Sweet's syndrome is a neutrophilic dermatosis with the abrupt appearance of tender erythematous pseudovesicular plaques or nodules usually on the limbs, face, and neck. Biopsy is recommended to confirm diagnosis.

2 What is the most likely diagnosis?

Sweet's syndrome—also known as acute febrile neutrophilic dermatosis—is characterised by fever and sudden onset painful erythematous plaques with a pseudovesicular appearance, and leucocytosis with neutrophilia. Patients might also present with extracutaneous involvement such as mucosal ulcers, ocular lesions, renal injury, polymyositis, arthritis, and acute encephalitis. Diagnosis is confirmed by combining clinical presentation and histology findings. Histopathology of the rash shows an upper dermis diffuse infiltration predominantly with neutrophils.

Sweet's syndrome is usually associated with underlying conditions, including infection (eg, upper respiratory tract infection), malignancies (eg, haematological malignancies such as acute myeloid leukaemia and myelodysplastic syndrome), drugs (eg, granulocyte colony stimulating factor), and inflammatory disorders (eg, ulcerative colitis or Crohn's disease).

3 What is the management of this condition?

The primary treatment for Sweet's syndrome involves identifying and managing the underlying cause, if known, and symptom control. Treatment options include glucocorticoids, ciclosporin, colchicine, biologics, and non-steroidal anti-inflammatory drugs.

LEARNING POINTS

- Sweet's syndrome (acute febrile neutrophilic dermatosis) is characterised by fever, sudden onset tender erythematous plaques with pseudovesicular appearance, and leucocytosis with neutrophilia.
- Screening for underlying conditions especially infections, haematological malignancies, autoimmune diseases, and inflammatory disorders is essential for patients with Sweet's syndrome.
- Management combines treating any underlying condition with relieving symptoms.

PATIENT OUTCOME

See bmj.com.

CPD READING 0.5 HOURS

You can record CPD points for reading any article. We suggest half an hour to read and reflect on each.

LEARNING MODULE

Articles with a "learning module" logo have a linked BMJ Learning module at learning.bmj.com.

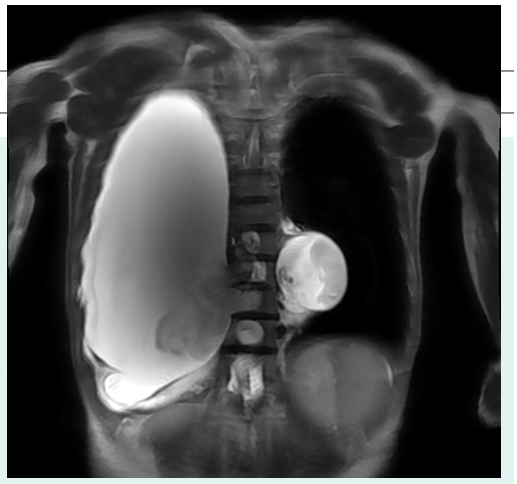
MINERVA

Progressive breathlessness in a patient with neurofibromatosis type 1

This woman in her early 50s with a background of neurofibromatosis type 1 (NF1) presented with a seven year history of gradually progressive shortness of breath. In patients with NF1, the differential diagnoses for progressive shortness of breath include parenchymal lung involvement, pulmonary hypertension, compression by NF1 associated space occupying tumours, and intrathoracic meningocele.

Computed tomography showed a localised opacity in the left hemithorax and a large opacity in the right hemithorax with compression of adjacent lung tissue and leftward displacement of the trachea, cardiac silhouette, and mediastinum. T2 weighted magnetic resonance imaging showed a substantial meningocele occupying the right hemithorax, and a localised meningocele in the left, with a signal intensity consistent with cerebrospinal fluid (figure).

In patients with NF1, intrathoracic meningocele is usually small and asymptomatic. Meningoceles can cause respiratory symptoms, however, owing to the compression of local structures. After multidisciplinary consultation and discussion of the risks of surgery, the patient opted for conservative management with regular follow-up.



Jun Liu; Zhichao Wang (shmuwzc@163.com), Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China

Patient consent obtained.

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Cardiovascular disease in people with psoriasis

Although psoriasis is known to carry an increased risk of cardiovascular disease, the underlying reasons aren't clear. Two cross-sectional studies from Sweden and the United States report that levels of a glycan biomarker of acute phase proteins correlate with both an index of psoriasis severity and indicators of atherosclerosis (*JAMA Dermatol* doi:10.1001/jamadermatol.2024.4433). The association between the two conditions may be mediated by systemic inflammation.

Ultra-processed food and psoriasis

On the subject of psoriasis, a large study of nutrition from France links disease activity to a higher intake of ultra-processed foods (*JAMA Dermatol* doi:10.1001/jamadermatol.2024.4832). But it's hard to interpret this finding usefully because, as this column noted a couple of weeks ago, ultra-processed foods are a wide and diverse group. What's more, the cross-sectional design of the study makes it impossible to know whether the raised intake of ultra-processed foods is a cause or a consequence of psoriasis.

Long term cognitive effects of menopausal hormone therapy

A study of early hormone therapy in menopausal women found no short term effects on performance in tests of cognitive ability (*PLoS Med* doi:10.1371/journal.pmed.1004435). Ten years later, the findings are unchanged. Whatever the type of hormone supplement, menopausal hormone therapy seemed to have no impact on higher mental function.

Asystolic cardiac arrest outside hospital

Registry data from Japan on 36 000 people who experienced an out-of-hospital asystolic cardiac arrest show that the outlook is bleak (*JAMA Netw Open* doi:10.1001/jamanetworkopen.2024.45543). Thirty days post arrest, only one in 500 cases showed cerebral function at a level adequate for independent daily life. Life support measures before hospitalisation, such as advanced airway management and intravenous adrenaline (epinephrine), improved survival but didn't increase the chances of a favourable neurological outcome.

Ig Nobel prizes

It's easy to criticise Nobel prizes. They go to individuals rather than the teams that made the discoveries possible; they're usually awarded 20 years too late; and women don't get anywhere near their fair share. Ig Nobel prizes are a different matter—not least because no one takes them too seriously. They make people laugh and help scientists engage with the public about their work (*Nature* doi:10.1038/d41586-024-03756-w). A few years ago, investigators who showed that the pinna of the human ear continues to grow throughout adult life were awarded one. The finding was first published in a Christmas edition of *The BMJ* (doi:10.1136/bmj.311.7021.1668).

Prenatal exposure to residential greenness

A longitudinal investigation of 3000 pregnant women in New York reports that preterm birth was less common among those who lived in areas with more parks and green spaces (*Am J Epidemiol* doi:10.1093/aje/kwae436). Minerva struggled to understand why the research was necessary. Surely, people living in cities deserve easy access to green spaces regardless of any influence on gestational outcomes?

Hearing and quality of life in older adults

Judged by its primary outcome, cognitive change over three years, the ACHIEVE trial failed to show that providing hearing aids for older people with hearing loss was beneficial (*Lancet* doi:PIIS0140-6736(23)01406-X). A secondary analysis now finds that the intervention had little effect on quality of life (*JAMA Netw Open* doi:10.1001/jamanetworkopen.2024.46591). People randomised to receive hearing aids scored no higher on measures of health related quality of life than those in the control group.

Cite this as: *BMJ* 2024;387:q2728