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This Week in Rheumatology

Ankylosing Spondylitis

Recent research on ankylosing spondylitis (AS) highlights key insights into treatment safety and efficacy. A nested case-control study by Kwon et al. (Rheumatology 2024, PMID: 40478687) investigated the impact of TNF inhibitors (TNFi) on cancer recurrence risk in AS patients. While the full abstract was unavailable, the study design suggests a focus on evaluating whether TNFi therapy exacerbates malignancy recurrence—a critical concern for rheumatologists managing comorbid conditions. This aligns with broader efforts to balance immunomodulatory benefits with long-term safety, though further data is needed to clarify clinical implications. Together, these findings underscore the importance of personalized risk-benefit assessments when selecting biologics for AS patients, particularly those with a history of cancer.

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- Effect of TNF inhibitors on the risk of cancer recurrence in patients with ankylosing spondylitis: a nested case-control study. by Kwon OC, Lee HS, Jeon SY, Park MC. Rheumatology (Oxford, England). PMID: 40478687

Autoinflammatory Diseases

Recent research highlights the role of immune dysregulation in adult-onset Still’s disease (AOSD), with a focus on the therapeutic potential of IL-6 receptor (IL-6R) blockade combined with immunosuppressants. A mass cytometry study by Guo et al. (2025) revealed significant immune remodeling in AOSD, including depletion of CD4+ T cells and B cells, hyperactivation of CD8+ T cells, and the identification of a novel CD45+CD3−CD19−CD10−CD66a+ population. These abnormalities were partially reversed by combined IL-6R blockade (tocilizumab), methotrexate, and prednisone, which restored immune balance and correlated with clinical improvement. Key cytokines like IL-18, IL-21, and IFN-γ were strongly associated with disease activity, suggesting their role as biomarkers or therapeutic targets. The study also identified persistent immune dysregulation post-treatment, underscoring the need for ongoing monitoring and optimized immunotherapeutic strategies.

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Health Policy

A recent retrospective cohort study by Singh et al. (2024) in *The Lancet Rheumatology* examined trends in autoimmune disease prevalence during pregnancy in the UK from 2000 to 2021. While the full abstract details were unavailable, the study's focus on longitudinal data suggests critical insights into how autoimmune conditions—such as rheumatoid arthritis, lupus, or thyroid disorders—may be evolving in pregnant populations, potentially reflecting broader diagnostic, environmental, or therapeutic shifts. For rheumatologists, these findings could underscore the need for tailored antenatal care strategies, especially given the interplay between autoimmune flares, pregnancy outcomes, and emerging therapies. Further research is warranted to dissect causative factors and optimize management protocols for this high-risk cohort.

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Immunology

Recent research highlights promising advances in immunology, particularly in the application of chimeric antigen receptor (CAR) therapies for autoimmune rheumatic diseases. A scoping review by Niño-Torres et al. (2025) underscores the potential of CAR-T cells targeting CD19 in systemic autoimmune rheumatic diseases (SARDs), with early-phase trials showing efficacy in lupus, systemic sclerosis, and inflammatory myopathies. Notably, CD19 CAR-T cells achieved remission in refractory lupus patients, with sustained B-cell depletion and reconstitution of naïve B cells, suggesting a potential

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Infectious Diseases

Recent research highlights the potential of TNF-α inhibitors in reducing mortality among hospitalized COVID-19 patients, particularly in moderate-to-critical cases. A 2025 meta-analysis by Jánosi et al. (PMID: 40481519) of 7 studies (n=1,393) found TNF-α inhibitors (primarily infliximab) reduced mortality odds by 33% (OR 0.67, 95% CI 0.44-1.00), with a more pronounced effect in RCTs (OR 0.75, 95% CI 0.58-0.97). The number needed to treat was 16 to prevent one death. While no significant reduction in mechanical ventilation was observed, TNF-α inhibitors rapidly lowered CRP levels by 21.9 mg/L within 3-7 days (P=0.024), suggesting effective modulation of the cytokine storm. Safety profiles were comparable to standard care, with serious adverse events being rare and unrelated to treatment. However, the evidence remains very low certainty due to heterogeneity in study designs and small sample sizes. These findings align with observational data showing improved outcomes in autoimmune patients on chronic TNF-α therapy, though larger RCTs are needed to confirm optimal timing and patient selection.

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Osteoarthritis

Recent research highlights the efficacy of aerobic exercise in managing knee osteoarthritis (KOA), with Pilates and Tai Chi emerging as top interventions. A network meta-analysis of 67 randomized controlled trials (RCTs) involving 4,944 patients found that Pilates was most effective for improving overall function (WOMAC scores) and reducing stiffness, while Tai Chi excelled in pain reduction (VAS scores). Weight-loss walking also showed promise, particularly for mobility (TUG test). The study underscores the importance of tailored exercise regimens, with Pilates and Tai Chi recommended as first-line therapies due to their multimodal benefits, including biomechanical improvements and anti-inflammatory effects. Meanwhile, a separate systematic review and meta-analysis reinforced that aerobic exercise enhances cardiopulmonary fitness in KOA patients, though adherence remains a challenge due to joint pain. Notably, MRI-based nomograms are advancing diagnostic stratification for early KOA, while nationwide data reveal higher risks of deep vein thrombosis and surgical site infections with cemented total knee arthroplasty compared to cementless options. Together, these findings advocate for personalized, exercise-centric management of KOA, with careful consideration of surgical risks when interventions fail.

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osteoarthritis: a systematic review and meta-analysis. by Su S, Yu CC, Zhou EF, Liu JY, Fu SN. BMC musculoskeletal disorders. PMID: 40462002

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Other Rheumatic Diseases

Recent studies highlight the heterogeneity and clinical implications of interstitial lung disease (ILD) in rheumatic diseases, particularly in nonspecific interstitial pneumonia with organizing pneumonia (NSIP/OP) overlap. Asaoka et al. (2025) identified two distinct pathological clusters in NSIP/OP overlap: Cluster 1 (fibrotic changes with mild inflammation) and Cluster 2 (intense inflammation with fibrosis). While both clusters initially responded to treatment, Cluster 2 showed progressive ILD deterioration, worse pulmonary function, and higher rates of progressive pulmonary fibrosis (PPF), underscoring the need for tailored management based on early histopathological evaluation. Meanwhile, Lee et al. (2025) reported a threefold increased risk of HPV-associated gynecologic cancers (e.g., cervical, vaginal) in women of childbearing age with rheumatic diseases (RD), particularly systemic lupus erythematosus (SLE) and seropositive rheumatoid arthritis (SPRA). Comorbidities and immunosuppressive therapies further modulated this risk, with SLE patients showing higher vulnerability due to medication effects. These findings emphasize the importance of enhanced screening and preventive strategies in high-risk RD populations. Together, these studies underscore the need for personalized approaches in managing ILD and cancer risks in rheumatic disease patients, integrating histopathological, clinical, and demographic factors to optimize outcomes.

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Psoriatic Arthritis

Recent research highlights significant gender differences in psoriatic arthritis (PsA), with women experiencing worse psychological and clinical outcomes. A cross-sectional study by Ristic et al. (BMC Psychology, 2025) found that female patients with PsA and axial spondyloarthritis (axSpA) reported higher fatigue, pain, stress, and dysfunctional coping strategies compared to men, leading to lower physical and mental quality of life (QoL). Fatigue, anxiety, and stress were key drivers of poor QoL in women, while men's QoL was more affected by fatigue, pain, and anxiety. The study underscores the need for gender-tailored therapeutic strategies to address these disparities. Meanwhile, Gladman et al. (RMD Open, 2025) identified distinct disease activity trajectories in PsA patients treated with tofacitinib, with some achieving rapid remission (group 1) and others showing delayed or minimal response (group 5). Baseline enthesitis and tender joint counts predicted slower responses, suggesting these factors could guide personalized treatment decisions. Another study (Science Immunology, 2025) explored immunoproteasome up-regulation in treatment-resistant PsA, hinting at potential biomarkers for refractory disease. Collectively, these findings emphasize the importance of gender-sensitive care and the need for deeper phenotyping to optimize treatment outcomes in PsA.

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Rheumatoid Arthritis

Recent research highlights key advances in understanding and managing rheumatoid arthritis (RA), with a focus on treatment efficacy, safety, and comorbidities. A randomized trial (Lend et al., RMD Open) found that glucocorticoid use in early RA independently elevates PCSK9 levels, suggesting a potential link to cardiovascular risk. Meanwhile, Ito et al. (Respiratory

Investigation) emphasize the need for tailored evaluation and management of RA-associated interstitial lung disease, underscoring its clinical significance. Miranda-Prieto et al. (Rheumatology) identified age-associated B-cells as biomarkers for atherosclerosis and immune dysregulation in early arthritis, offering a potential tool for risk stratification. On the therapeutic front, Burmester et al. (RMD Open) conducted a benefit-risk analysis of upadacitinib versus adalimumab, revealing that upadacitinib showed superior efficacy across cardiovascular risk groups, albeit with higher rates of herpes zoster and non-melanoma skin cancer in high-risk patients. Safety concerns were further explored by Akagi et al. (Rheumatology), who reported reduced NK cell cytotoxicity in younger RA patients on JAK inhibitors, hinting at immunomodulatory trade-offs. Additionally, Adas et al. (Rheumatology) highlighted elevated infection risks in early inflammatory arthritis cohorts, while Li et al. (PLoS One) projected the growing global burden of RA, particularly among working-age populations. Together, these studies underscore the importance of personalized treatment strategies balancing efficacy, safety, and comorbidity management in RA.

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Scleroderma

Recent research on scleroderma highlights advancements in understanding and managing both juvenile localized scleroderma (jLS) and systemic sclerosis (SSc). A large retrospective cohort study by Egeli et al. (2025) examined 101 pediatric jLS patients, revealing a shift toward systemic therapy (e.g., methotrexate) following the 2012 CARRA consensus treatment plan, particularly for moderate-to-severe cases. The study underscored the benefits of multidisciplinary care, with combined rheumatology-dermatology programs correlating with improved treatment adherence and outcomes. Meanwhile, studies on SSc explored diverse facets: Iannone et al. investigated selexipag's long-term efficacy in digital ulcers, while Zheng et al. and Sobanski et al. focused on predicting lung function decline and survival in SSc-associated interstitial lung disease (ILD), respectively. Di Donato et al. analyzed temporal trends in vascular medication use across 8,079 SSc patients, offering insights for future therapeutic strategies. Together, these studies emphasize tailored, evidence-based approaches—whether optimizing systemic therapy in jLS or refining prognostic tools and treatments for SSc complications.

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Sjogren's Disease

Recent research highlights the potential of serum growth differentiation factor 15 (GDF15) as a novel biomarker for primary Sjögren's syndrome (pSS). A study by Fu et al. (2025) found that GDF15 levels were significantly elevated in pSS patients compared to healthy controls, with ROC analysis demonstrating strong discriminative capacity (AUC 0.78). Notably, GDF15 levels correlated with extra-glandular manifestations (EGMs), particularly pulmonary, hematological, renal, and nervous system involvement, and were higher in patients with active disease (ESSDAI ≥5). The study also developed a machine learning model combining GDF15 with albumin, red blood cell count, and CRP, achieving an AUC of 0.91 for predicting disease activity. These findings suggest GDF15 could aid in monitoring disease progression and guiding treatment decisions. The research underscores GDF15's role as a multifunctional protein linked to chronic inflammation, though further studies are needed to elucidate its mechanistic contributions in pSS.

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Systemic Lupus Erythematosus

Recent research highlights critical insights into Systemic Lupus Erythematosus (SLE), particularly regarding disease onset timing and pregnancy outcomes. A retrospective cohort study (Xu et al., 2025) found that pregnancy-onset SLE (diagnosed during pregnancy) was associated with more severe clinical manifestations—including higher rates of skin/mucosal abnormalities (35.9% vs. 17.5%), hematologic involvement (71.8% vs. 46.3%), and active lupus nephritis (33.3% vs. 16.4%)—compared to pre-pregnancy-onset SLE. These patients also faced significantly worse adverse pregnancy outcomes (APOs), such as fetal loss (64.1% vs. 19.2%) and preterm birth (57.1% vs. 25.9%), driven by heightened disease activity and autoantibody positivity (e.g., 100% ANA positivity). Notably, childhood-onset SLE showed fewer APOs than pregnancy-onset cases, suggesting onset timing is a key prognostic factor. Meanwhile, a separate study (Alshekaili et al., 2025) compared familial, monogenic, and sporadic SLE, though details were limited—hinting at genetic heterogeneity in disease presentation. Collectively, these findings underscore the need for vigilant monitoring and tailored interventions in pregnancy-onset SLE, where inflammation and autoantibody profiles may exacerbate risks. The research calls for prospective studies to refine management strategies for this high-risk subgroup.

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Vasculitis

Recent advances in vasculitis research highlight significant progress in diagnosis and treatment, particularly for ANCA-associated vasculitis (AAV) and Takayasu arteritis (TAK). Trivioli et al. discuss emerging therapies for AAV, emphasizing targeted immunomodulatory approaches that improve outcomes while reducing glucocorticoid dependence. Meanwhile, Liu et al. present the 2025 Chinese guidelines for TAK imaging, advocating for a shift from invasive digital subtraction angiography (DSA) to non-invasive modalities like ultrasound, MRI, and PET/CT. The guidelines provide detailed protocols for imaging selection, emphasizing ultrasound for carotid and limb arteries, MRI/CT for aortic involvement, and PET/CT for systemic inflammation assessment. Notably, contrast-enhanced ultrasound (CEUS) and PET vascular activity scores (PETVAS) are highlighted as valuable tools for detecting active inflammation and monitoring treatment response. The research underscores the importance of standardized imaging to guide therapeutic decisions, particularly in complex cases like TAK with vascular stents or pregnancy, where MRI and ultrasound are preferred. Together, these studies reflect a trend toward precision medicine in vasculitis, integrating advanced imaging and targeted therapies to optimize patient care.

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