
GRAPPA
Group for Research
and Assessment of Psoriasis and Psoriatic Arthritis
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Case report
by
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Professor of internal medicine
Cairo university
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Group for Research
and Assessment of Psoriasis and Psoriatic Arthritis
EGYPT 2024

Y L 37 years old female patient presents with

Inflammatory polyarthritis affecting small and large joints with morning stiffness for more than one hour

Inflammatory low back pain, associated with buttock pain.

One year duration

She is dyslipidemic, hypertensive and hypothyroidism.

She had family history of psoriasis, &IHD

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Patient is fully conscious oriented to time place and person

Vitally stable

BMI 29 **kg/m²**

Tenderness over MCPs, PIPs,wrist, elbow

Synovial thickness wrist

Iliac compression test was positive

Patrick-FABER test was positivity

Investigation

ESR :90 **CRP 12 mg/dl**

RF & ANTICCP: Negative

X ray hands: normal

Hands ultrasound reveal active synovitis at writs, PIP& DIP

MRI sacroiliac with stir technique revealed bilateral sacroiliitis

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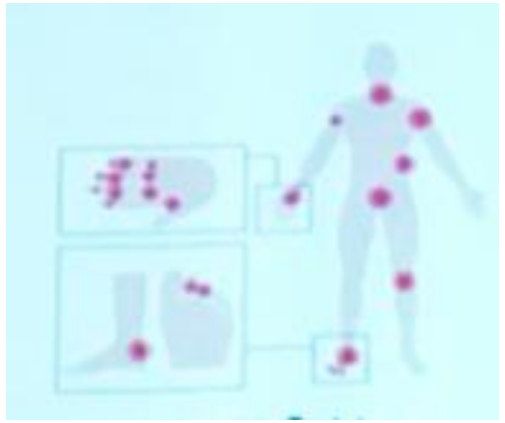
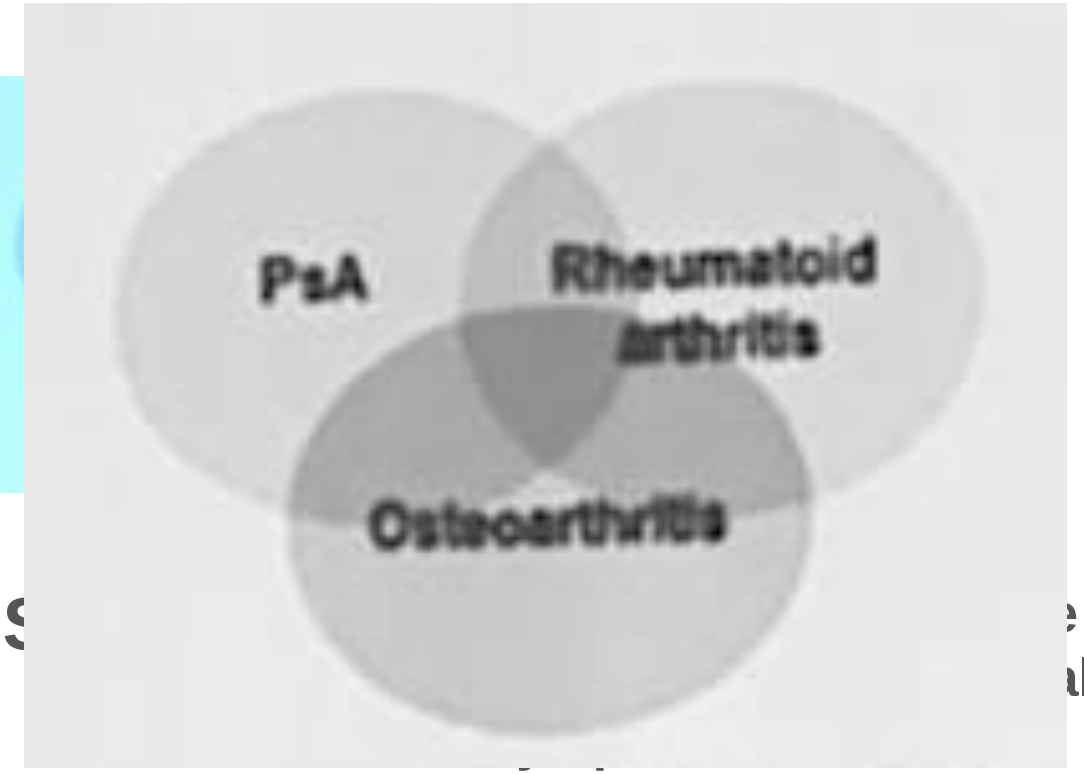
What is the possible diagnosis

PsA is often undiagnosed or misdiagnosed



- **Heterogenous clinical presentations**



- **S**

dermatologist

- **Absence of well-accepted tools for PsA screening and detection.**
- **Lack of a diagnostic lab markers.**

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CASPAR Criteria

CASPAR Criteria

CASPAR stands for classification criteria for psoriatic arthritis.

- The **CASPAR** criteria were developed by an international group of rheumatologists in 2006 to help standardize the diagnosis of psoriatic arthritis (PsA).
- The aim is to identify people with PsA early so they can be treated before the disease progresses.

Table 1

CASPAR criteria for PsA[17]

To meet the CASPAR criteria for PsA, the patient should have inflammatory joint disease (peripheral, axial or enthesitis) and achieve three or more points, based on the following categories

1. Evidence of psoriasis	
Current	2 points
[illegible]	1 point
Familial history	1 point
2. Psoriatic nail dystrophy	
Pitting, onycholysis, hyperkeratosis	1 point
3. Negative test result for rheumatoid factor	1 point
4. Dactylitis	
Current inflammation of an entire digit	1 point
History of dactylitis	1 point
5. Radiological evidence of juxta-articular new bone formation	
Well-defined ossification close to joint margins on plain radiographs of hands and feet	1 point

Sensitivity: 91%; specificity: 99%.

Leung, Ying Ying & Tam, Lai-Shan & Ho, Kwok & Lau, Wai & Li, Tena & Zhu, Tracy & Kun, Emily & Li, Edmund. (2009). Evaluation of the CASPAR criteria for psoriatic arthritis in the Chinese population. Rheumatology (Oxford, England). 49. 112-5. 10.1093/rheumatology/kep348.

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She was diagnosed most probably psoriatic arthritis

What is the proper management

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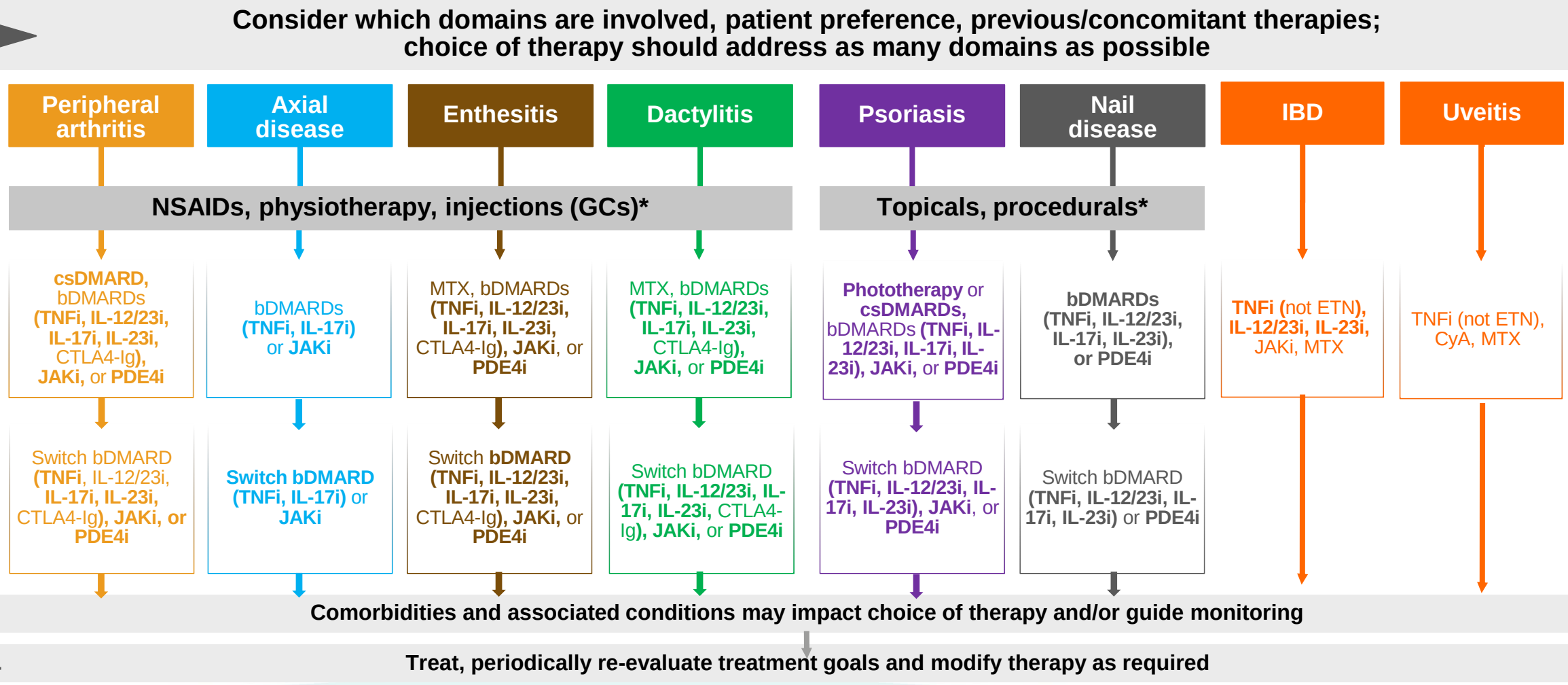
Due to the heterogeneous presentation of psoriatic arthritis, the type of treatment initiated depends on the domains involved, including peripheral arthritis, enthesitis, dactylitis, axial disease, and skin/nail disease.

GRAPPA 2021 Updated treatment schema



Bold text indicates a strong recommendation, standard text a conditional recommendation. Asterisks indicate a conditional recommendation based on data from abstracts only.

Coates LC, et al. *Nat Rev Rheumatol*. 2022;1–15. doi:10.1038/s41584-022-00798-0

A limited place for NSAIDs as monotherapy

Polyarthritis

Oligoarthritis, poor prognostic factors

Oligoarthritis, no poor prognostic factors

Entheseal disease

Predominant axial disease

Poor prognostic factors:

Polyarthritis - Structural damage - Elevated acute phase reactants -Dactylitis - Nail involvement

NSAIDs / local glucocorticoid injections
(short-term, usually maximum 4 weeks)

DMARDs

Gossec L et al, EULAR recommendations
Kerschbaumer A, et al. Ann Rheum Dis. 2020;79(6):778-786

Reco. 2: Initial management

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Modified

2. Non-steroidal anti-inflammatory drugs may be used to relieve musculoskeletal signs and symptoms; local injections of glucocorticoids may be considered as adjunctive therapy.

1b/3b
A/C

.7

Reco. 3: peripheral arthritis, first-line treatment

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Modified

3. In patients with polyarthritis, or those with mono-/oligoarthritis and poor prognostic factors (e.g. structural damage, elevated acute phase reactants, dactylitis or nail involvement), a csDMARD should be initiated rapidly, with methotrexate preferred in those with clinically relevant skin involvement.

1b/4
B/C

9.3±0.8

TIS

Patient started NSAIDs with methotrexate 12,5 mg per week together with physiotherapy

But the patient unfortunately had partial improvement after one month with mild reduction of the acute phase reactants

What is the possible next step

Reco. 8: axial disease

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Modified

8. In patients with clinically relevant axial disease with an insufficient response to NSAIDs, therapy with an IL-17A inhibitor, a TNFi, an IL-17 A/F inhibitor or a JAKi* should be considered.

1b B

9.4±1.3

- The modes of action proposed are efficacious in axial spondyloarthritis; coherence with the updated ASAS-EULAR axial spondyloarthritis recommendations[1]

ASAS eular

- IL17A inhibitor: MAXIMISE randomised controlled trial of secukinumab in axial PsA[2]

*For JAK-inhibitors, caution is needed for patients aged 65 years or above, current or past long-time smokers, with a history of atherosclerotic cardiovascular disease or other cardiovascular risk factors or with other malignancy risk factors; with known risk factors for VTE.

Bimekizumab is not approved in axSpA as of June 2, 2023

1. Ramiro S et al. Ann Rheum Dis. 2023 Jan;82(1):19-34; 2. Baraliakos X et al. Ann Rheum Dis. 2021 ;80(5):582-590..

Gossec L, *et al.* EULAR 2023 (OP)

Etanercept one ampoule subcutaneous every week was added

Follow up after three months, patient showed marked improvement of her axial affection and moderate improvement of her peripheral joints, so methotrexate was increased to 20 mg per week

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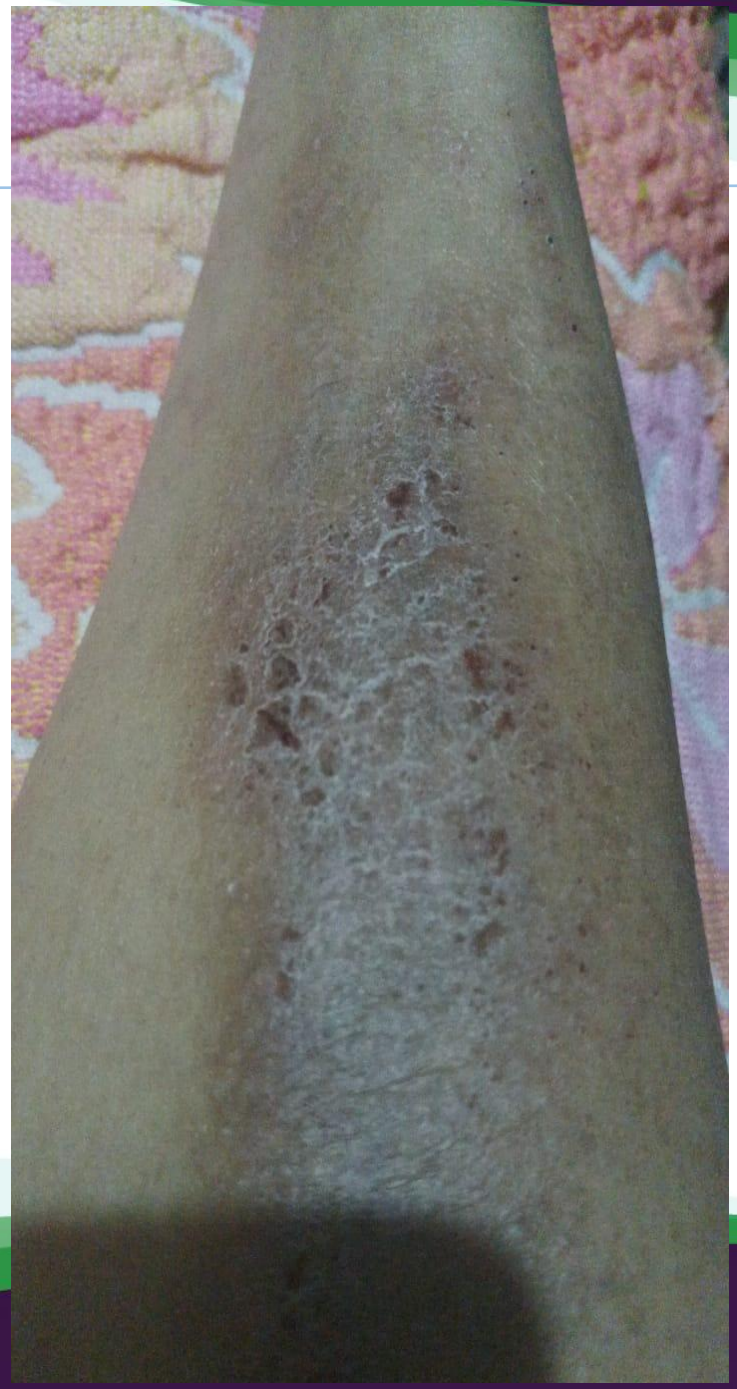
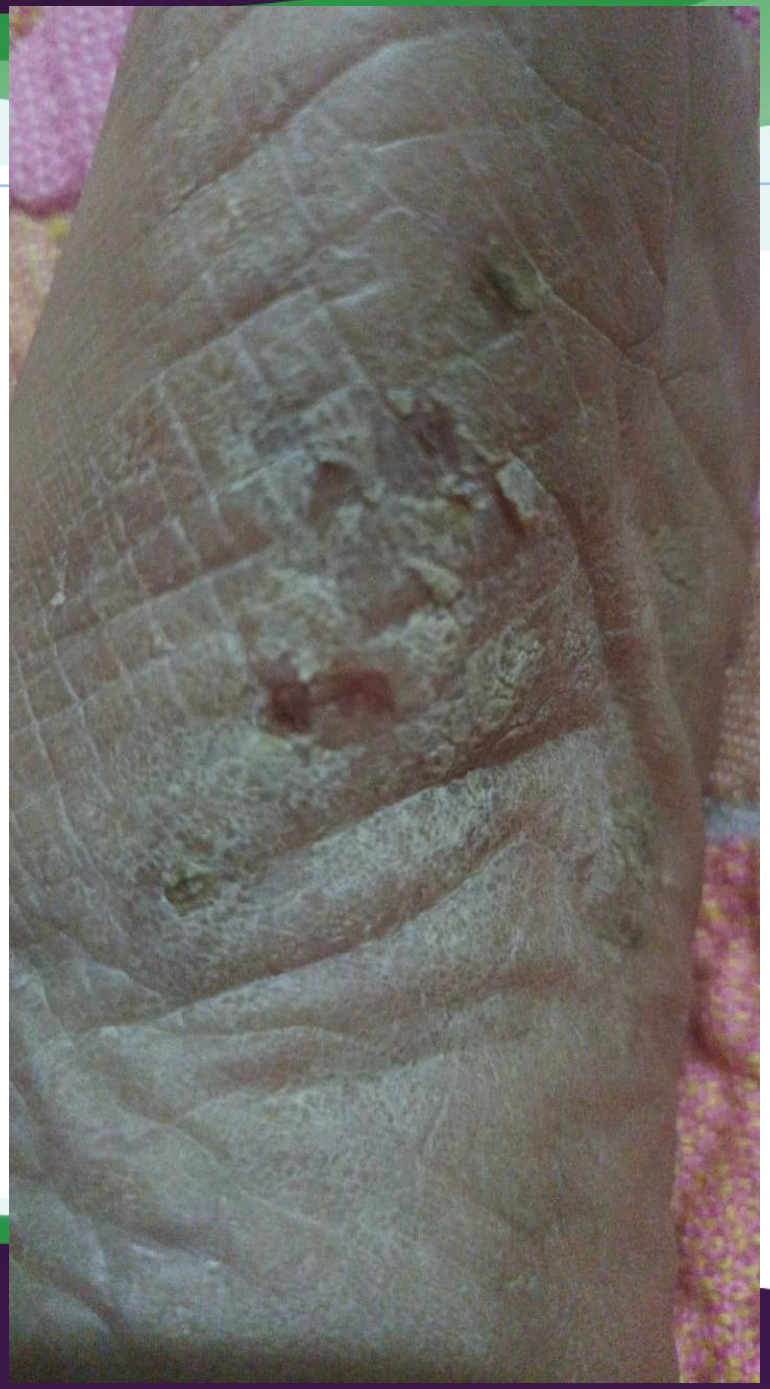
- After one year patient started to develop psoriatic skin rash over extremities and scalp
- Fulfilling the criteria of psoriasis





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Skin psoriasis: present - 2 / previously present -1 / family history, patien
not affected -

Dactylitis: present or
documented by a
tologist - 1

Rheumatoid f
negative by a
method except fo
latex - 1

Per CASPAR criteria, psoriatic arthritis is considered present in patients with inflammatory arthritis who have at least 3 points; this has a specificity of 98.7% and a sensitivity of 91.4%.

Taylor W, Gladman D, Helliwell P, Marchesoni A, Mease P, Mielants H., CASPAR Study Group. Classification criteria for psoriatic arthritis: development of new criteria from a large international study. Arthritis Rheum. 2006 Aug;54(8):2665-73

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- **Why the patient develop psoriasis ???**
- **What is the possibilities??**

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How many psoriatic patients develop arthritis

- Twenty to thirty percent of Pso patients will develop PsA

Tillett W, Charlton R, Nightingale A, Snowball J, Green A, Smith C, et al. Interval between onset of psoriasis and psoriatic arthritis comparing the UK Clinical Practice Research Datalink with a hospital-based cohort. Rheumatology (Oxford). 2017;56(12):2109–13.

Psoriatic Arthritis Pattern Affection

85%	10-15%	10-15%
Skin affection before arthritis	Simultaneous skin and joint affection	Arthritis before skin involvement

Paradoxical psoriasis or psoriasiform lesion induced by anti-TNF therapies is one of the most extended concerned topics worldwide.

Generally, anti-TNF treatments are commonly used for psoriasis therapy, but psoriasis and psoriasiform skin lesions are sometimes observed in IBD patients receiving anti-TNF therapies.

Overall, IBD patients treated with anti-TNF therapy have a 2.4-fold increased risk of paradoxical psoriasis compared with nonusers of anti-TNF

Bae JM, Lee HH, Lee BI, Lee KM, Eun SH, Cho ML, et al. Incidence of Psoriasiform Diseases Secondary to Tumour Necrosis Factor Antagonists in Patients With Inflammatory Bowel Disease: A Nationwide Population-Based Cohort Study. *Aliment Pharmacol Ther* (2018) 48(2):196–205.

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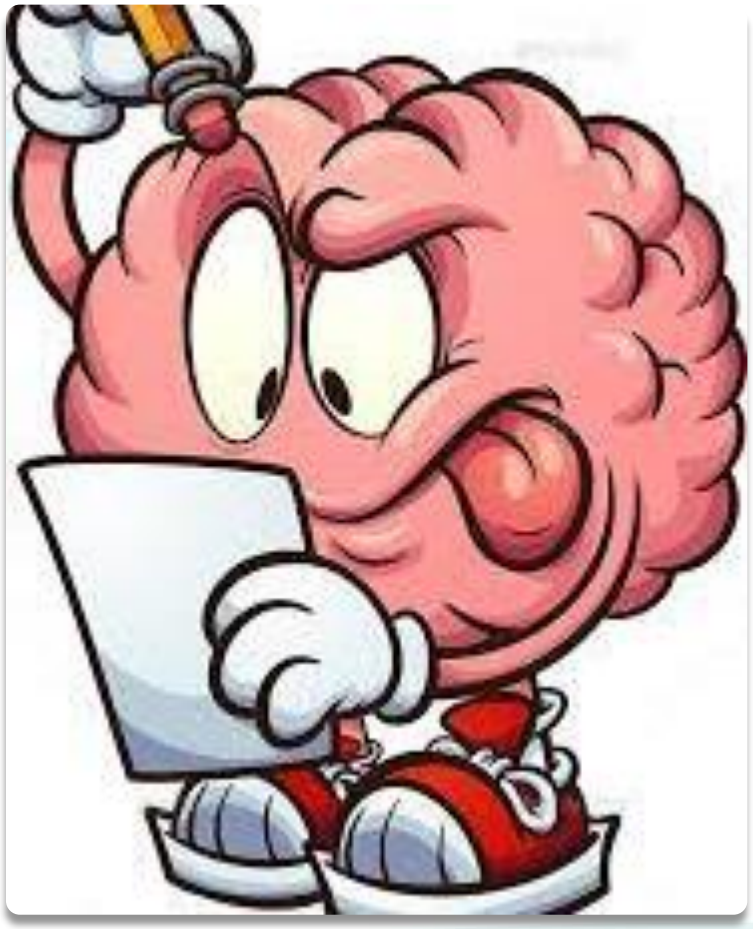

Are we in need to do HLA B 27

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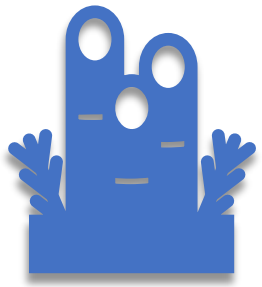
HLA-B*27 is a genetic biomarker of disease expression in PsA with male predominance and was found to be associated with early onset PsA, axial disease, uveitis and dactylitis

Batalla A, Coto E, González-Lara L, et al. Association between single nucleotide polymorphisms IL17RA rs4819554 and IL17E rs79877597 and psoriasis in a Spanish cohort. *J Dermatol Sci*. 2015;80:111–115



Axial involvement in PsA is more complicated.

***HLA-B27* gene is present in only 20% of patients with axial PsA (AxPsA)**

Axial disease in patients with PsA with positive HLAB 27 clinically similar to AS with earlier age of onset, more back pain, and radiographically appear more like AS.

Feld J, Ye JY, Chandran V, Inman RD, Haroon N, Cook R, Gladman DD. Axial psoriatic arthritis: distinct from ankylosing spondylitis with and without concomitant psoriasis? Rheumatology (Oxford). 2020 Jan 01;59(1):145-153.

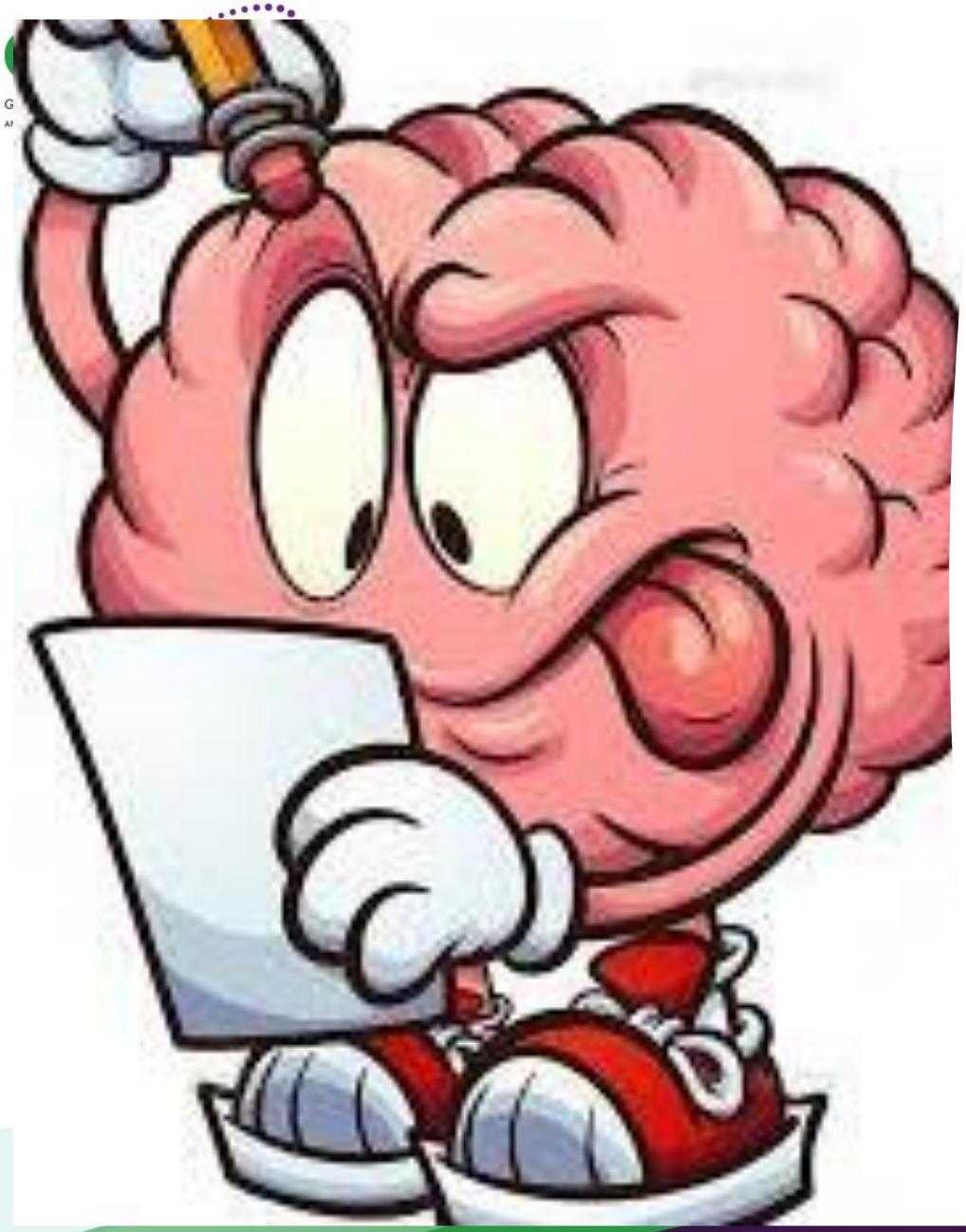
AxPsA with negative HLA-B27

Similar Frequency in males and female

Older age of onset

Less back pain

More frequent cervical spine disease, with radiographic features including asymmetric sacroiliitis and non-marginal, bulky syndesmophytes which are often asymmetric



What about the next step???

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What Do Guidelines Recommend?

eular | EUROPEAN ALLIANCE OF ASSOCIATIONS FOR RHEUMATOLOGY

EULAR recommendations for the management of psoriatic arthritis with pharmacological therapies: 2023 update

Laure Gossec ,[1,2] Andreas Kerschbaumer ,[3] Ricardo J O Ferreira ,[4,5] Daniel Aletaha ,[3] Xenofon Baraliakos ,[6] Heidi Bertheussen,[7] Wolf-Henning Boehncke,[8] Bente Appel Esbensen ,[9,10] Iain B McInnes,[11] Dennis McGonagle,[12,13] Kevin L Winthrop ,[14] Andra Balanescu,[15] Peter V Balint,[16] Gerd R Burmester ,[17] Juan D Cañete ,[18,19] Pascal Claudepierre,[20,21] Lihi Eder ,[22] Merete Lund Hetland ,[23,24] Annamaria Iagnocco ,[25] Lars Erik Kristensen,[26,27] Rik Lories,[28,29] Rubén Queiro ,[30,31] Daniele Mauro ,[32] Helena Marzo-Ortega ,[12,13] Philip J Mease ,[33,34] Peter Nash ,[35] Wendy Wagenaar,[36,37] Laura Savage,[38] Georg Schett ,[39] Stephanie J W Shoop-Worrall ,[40] Yoshiya Tanaka ,[41] Filip E Van den Bosch ,[42] Annette van der Helm-van Mil,[43] Alen Zabotti ,[44] Désirée van der Heijde ,[43] Josef S Smolen[3]

EULAR 2023 Sat, June 3; oral presentation

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EULAR recommendations for the management of psoriatic arthritis: 2023 update

Laure Gossec (Paris, France) and Josef Smolen (Vienna, Austria)

On behalf of the EULAR PsA management taskforce

Steering group: Andreas Kerschbaumer, Ricardo Ferreira, Heidi Bertheussen, Xenofon Baraliakos, Daniel Aletaha, Dennis McGonagle, Désirée van der Heijde, Iain McInnes, Bente Appel Esbensen, Kevin Winthrop, Wolf-Henning Boehncke

Taskforce members: Peter Nash, Andra Balanescu, Peter Balint, Gerd-Rüdiger Burmester, Juan D Canete, Pascal Claudepierre, Lihi Eder, Merete Hetland, Annamaria Iagnocco, Lars Erik Kristensen, Rik Lories, Ruben Queiro, Daniele Mauro, Helena Marzo-Ortega, Philip Mease, Wendy Olsder, Laura Savage, Georg Schett, Stephanie Shoop-Worall, Yoshiya Tanaka, Filip Van den Bosch, Anette van der Helm-van Mil, Alen Zabotti

Reco. 9: non-musculoskeletal manifestations

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New

9. The choice of the mode of action should reflect non-musculoskeletal manifestations related to PsA;

with clinically relevant skin involvement, preference should be given to an IL-17A or IL-17A/F or IL-23 or IL-12/23 inhibitor;

with uveitis to an anti-TNF monoclonal antibody;

and with IBD to an anti-TNF monoclonal antibody or an IL-12/23i or IL-23i or a JAKi*.

1b B

9.6±0.7

*For JAK-inhibitors, caution is needed for patients aged 65 years or above, current or past long-time smokers, with a history of atherosclerotic cardiovascular disease or other cardiovascular risk factors or with other malignancy risk factors; with known risk factors for VTE.

Joint Bone Spine
Volume 90, Issue 1, January 2023, 105469

Editorial

The updated GRAPPA and EULAR recommendations for the management of psoriatic arthritis: Similarities and differences

Laura Coates [a], Laure Gossec [b c]

Show more

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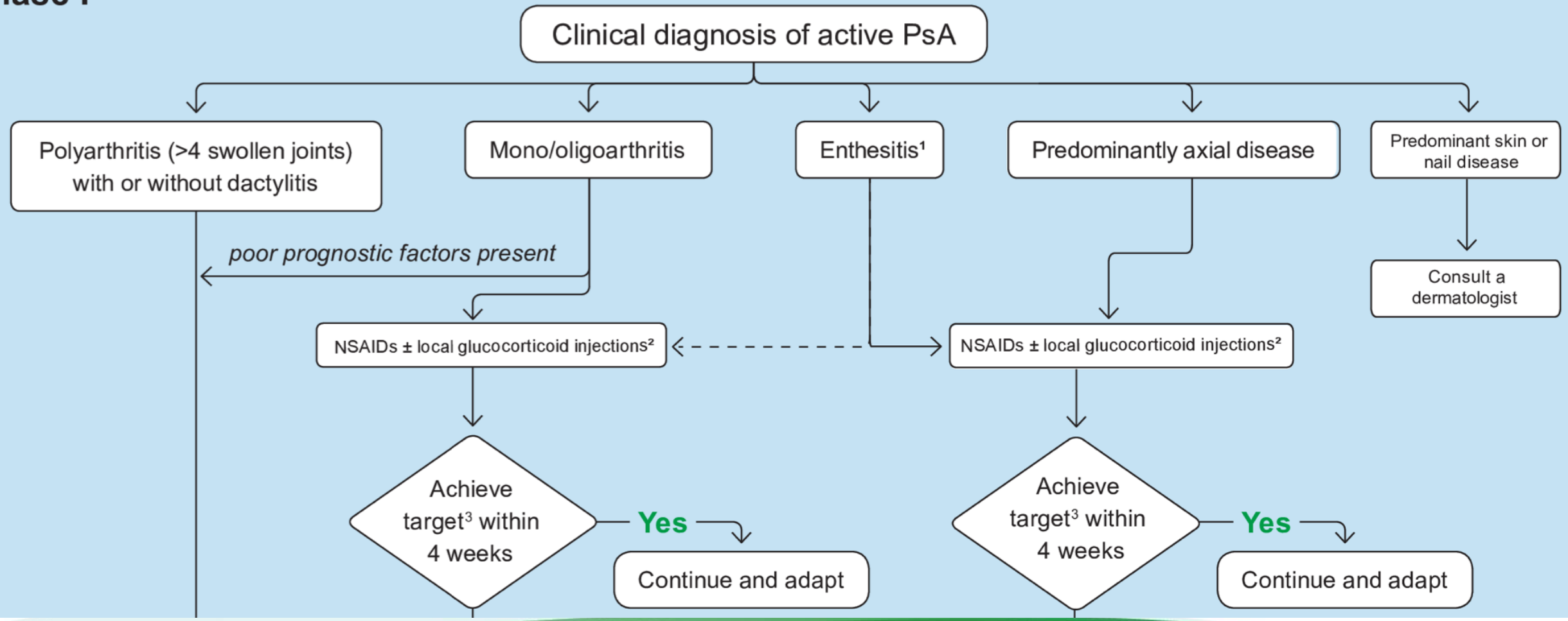
Phase I



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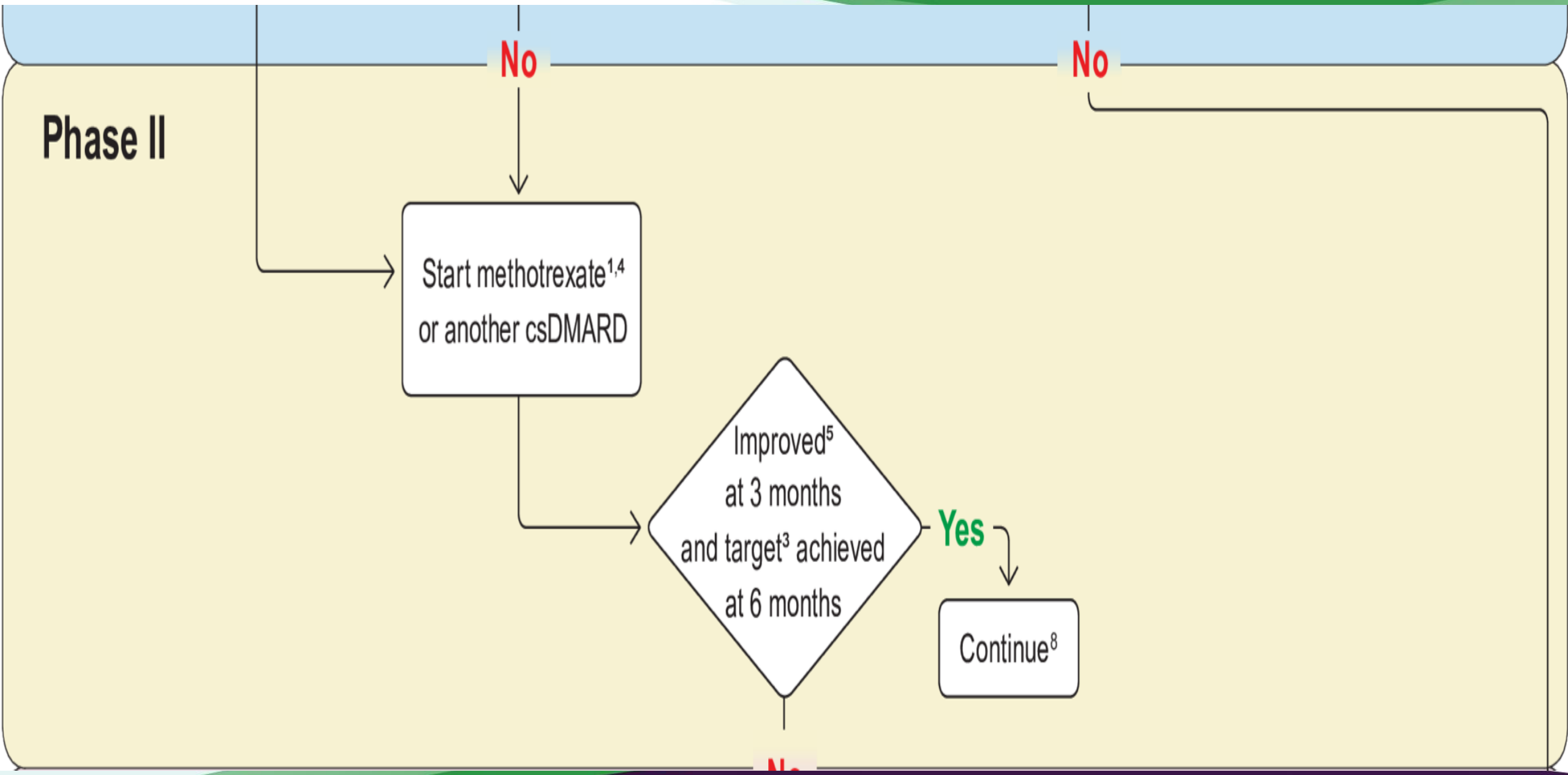

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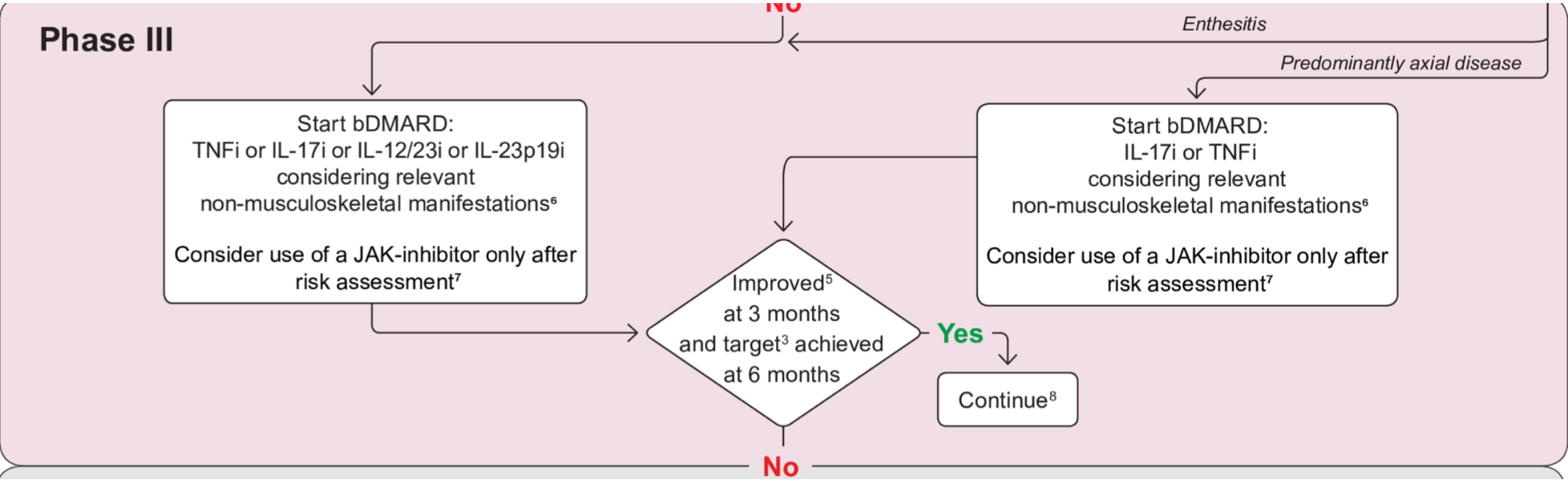

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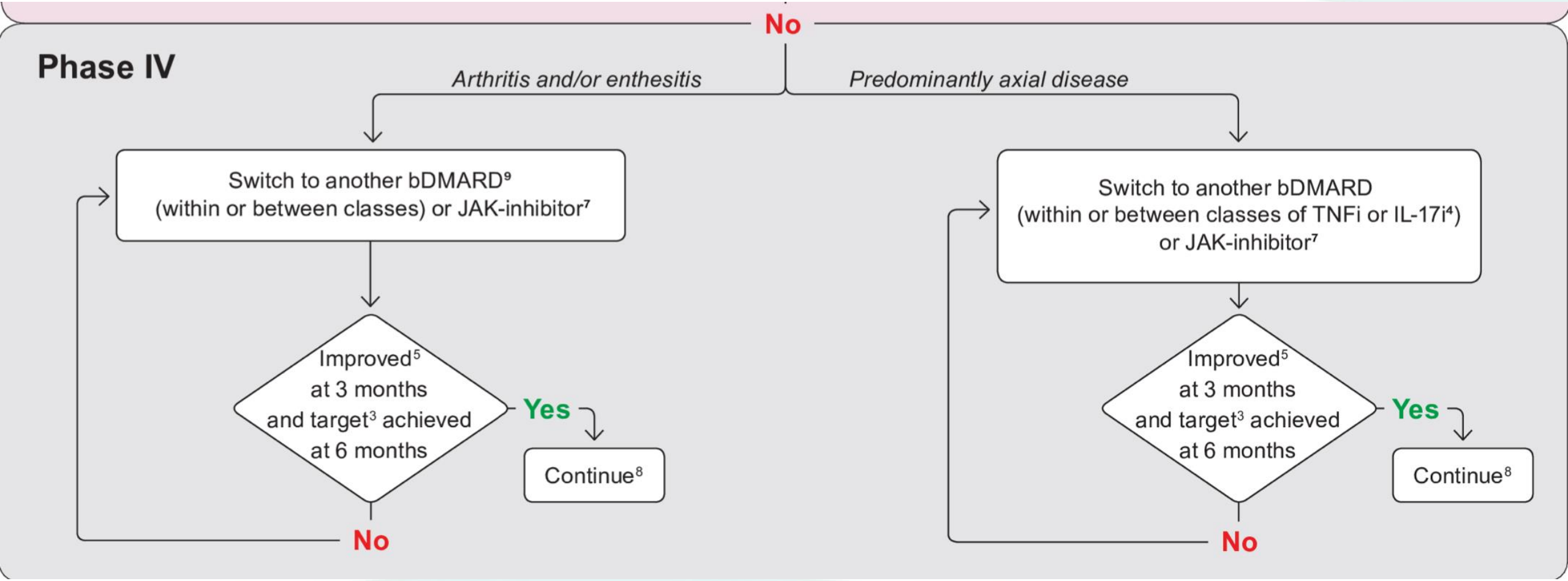

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GRAPPA 2022 Updates

Skin Domain

Strong recommendations were made for TNF inhibitors, IL-17 inhibitors, IL-12/23 inhibitors and IL-23 inhibitors; newer mode of action drugs (inhibitors of IL-17, IL-12/23 and IL-23) show higher efficacy for skin involvement than TNF inhibitors in studies of psoriasis and/or PsA. The selection of one drug over another should be influenced by the results of head-to-head studies in psoriasis populations, the presence of comorbidities, and disease activity in other PsA domains.

SEC is the safest Biologic

Table 4 | **Summary of recommendations for the treatment of PsA in the case of comorbidities**

Comorbidity	NSAIDs	GCs	MTX and/or LEF	TNF inhibitor	IL-17 inhibitor	IL-12/23 inhibitor, IL-23 inhibitor	JAK inhibitor	PDE4 inhibitor
Elevated risk of CVD	Caution	–	–	–	–	–	Caution	–
Congestive heart failure[a]	–	Caution	–	Avoid	–	–	–	–
Elevated risk for VTE	–	–	–	–	–	–	Caution	–
Obesity	–	–	Caution	–	–	–	–	–
Fatty liver disease	–	–	Avoid	–	–	–	–	–
Active hepatitis B or C	–	–	Avoid	Caution	Caution	Caution	Caution	Caution
HIV	–	–	–	Caution	Caution	Caution	Caution	Caution
Tuberculosis	–	–	–	Caution	Caution	Caution	Caution	Caution
History of recent malignancy	–	–	–	Caution	Caution	Caution	Caution	Caution
MS and/or demyelinating disease	–	–	–	Avoid	–	–	–	–
Depression and/or anxiety	–	–	–	–	–	–	–	Caution

CVD, cardiovascular disease; GC, glucocorticoid; JAK, Janus kinase; LEF, leflunomide; MS, multiple sclerosis; MTX, methotrexate; PDE4, phosphodiesterase 4; PsA, psoriatic arthritis; VTE, venous thromboembolism. [a]Severe or advanced; class III or IV according to the New York Heart Association (NYHA) Functional Classification.

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Back to our patients

1) hypertensive

2) dyslipedemic

3) Family history of IHD

4) BMI 29 **kg/m²**

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CVS in psoriasis

Role of PsA in Developing CV Events

Psoriatic disease and its associated comorbidities:
- Metabolic Syndrome

Cardiovascular comorbidities show the highest incidence among PsA comorbidities

Increased coagulability, adhesiveness, and permeability of the endothelium
Elevated VCAM-1, ICAM-1, E-selectin, P-selectin, and endothelin-1
Imbalance of vasoactive substances

PsA is associated with a
55%
increased risk of developing cardiovascular diseases

Cardiovascular events

Ther Adv Musculoskelet Dis. 2021; 13: 1759720X21998279.
Published online 2021 Mar 2. doi: 10.1177/1759720X21998279
Clinical Immunology https://doi.org/10.1016/j.clim.2020.108397

EULAR points to consider for reporting/screening/preventing comorbidities

Points to consider	level of evidence	Mean (SD) level of Agreement
Cardiovascular diseases		
1. History of myocardial infarction, pectoris angina, stent, stroke, transient ischaemic attack, heart failure and lower limb peripheral arterial disease should be documented 29 **kg/m²**	5	9.7 (0.5)
2. Cardiovascular risk factors such as smoking status, body mass index, history of hypertension, hypercholesterolaemia, renal insufficiency and HEART-SCORE index should be documented	1b	9.5 (0.9)
3. Current cardiovascular treatments such as antihypertensive therapy, antiplatelet therapy, diabetes insulin or non-insulin therapies, lipid-lowering agents and anticoagulants should be documented.	5	9.6 (0.7)

How all of that would affect our treatment choice?

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Is it safe to start secukinumab

Effect of secukinumab **on CardioMetabolic Risk**

and

Systemic Inflammation in PsA Patients.

Comorbidity	NSAIDs	GCs	MTX and/or LEF	TNF inhibitor	IL-17 inhibitor	IL-12/23 inhibitor, IL-23 inhibitor	JAK inhibitor	PDE4 inhibitor
Elevated risk of CVD	Caution	–	–	–	–	–	Caution	–
Congestive heart failure[a]	–	Caution	–	Avoid	–	–	–	–
Elevated risk for VTE	–	–	–	–	–	–	Caution	–
Obesity	–	–	Caution	–	–	–	–	–
Fatty liver disease	–	–	Avoid	–	–	–	–	–
Active hepatitis B or C	–	–	Avoid	Caution	Caution	Caution	Caution	Caution

Nature Reviews Rheumatology (*Nat Rev Rheumatol*) ISSN 1759-4804 (online) ISSN 1759-4790

American College of Rheumatology
Empowering Rheumatology Professionals

Secukinumab Effects on Cardiometabolic Risk and Systemic Inflammation in Patients with Psoriasis, Psoriatic Arthritis and Axial Spondyloarthritis: Results from Post Hoc Analyses of Pooled Data from 19 Phase 3/4 Clinical Studies

Joseph Merola[1], Iain McInnes[2], Atul Deodhar[3], Erhard Quebe-Fehling[4], Maher Aassi[4], Michael Peine[4] and **Nehal Mehta**[5], [1]Department of Dermatology and Department of Medicine, Division of Rheumatology; Brigham and Women's Hospital, Harvard Medical School, Newton, MA, [2]University of Glasgow, School of Medicine, Glasgow, Scotland, United Kingdom, [3]Oregon Health & Science University, Portland, OR, [4]Novartis Pharma AG, Basel, Switzerland, [5]NHLBI/National Institutes of Health, Bethesda, MD

Objective: to assess the effect of IL-17A inhibition with secukinumab on CV risk parameters in PsO, PsA and AxSpA patients over 1 year of treatment measured by hsCRP and NLR.

9,197 patients from 19 clinical trials

NLR: Neutrophil to Lymphocyte Ratio
hsCRP: High Sensitivity CRP

Merola J, McInnes I, Deodhar A, Quebe-Fehling E, Aassi M, Peine M, Mehta N. Secukinumab Effects on Cardiometabolic Risk and Systemic Inflamma... Psoriasis, Psoriatic Arthritis and Axial Spondyloarthritis: Results from Post Hoc Analyses of Pooled Data from 19 Phase 3/4 Clinical Studies [abstract]. Arthri... 2021; 73

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Median	PsO			PsA			AxSpA		
	Secukinumab		PBO	Secukinumab		PBO	Secukinumab		PBO
	300 mg	150 mg		300 mg	150 mg		300 mg	150 mg	
hsCRP (mg/L)									
Baseline	2.3	2.6	2.5	4.6	4.2	4.4	6.8	6.2	6.0
Week 12/16^	1.8*		2.2	2.4*		4.3			4.4
Week 52	1.9	1.9							-
NLR									
Baseline	3.2	2.5	2.6	2.6	2.6	2.5	2.2	2.5	2.5
Week 12/16^	2.1*	2.1*	2.4	2.2*	2.2*	2.5	2.0§	2.1*	2.5
Week 52	2.0	2.1	-	2.1	2.2	-	2.1	2.1	-

secukinumab administration rapidly reduced both hsCRP and the NLR at Week 12 (PsO) or Week 16 (PsA/AxSPA) in the overall population

NLR: Neutrophil to Lymphocyte Ratio
hsCRP: High Sensitivity CRP

In PsA Patients

Baseline

Sec 300mg	Sec 150mg	Placebo
4.6	4.2	4.4

Week 12/16

Sec 300mg	Sec 150mg	Placebo
2.4	2.6	4.3

Week 52

Sec 300mg	Sec 150mg	Placebo
2.4	2.5	-

Merola J, McInnes I, Deodhar A, Quebe-Fehling E, Aassi M, Peine M, Mehta N. Secukinumab Effects on Cardiometabolic Risk and Systemic Inflammation in Patients with Psoriasis, Psoriatic Arthritis and Axial Spondyloarthritis: Results from Post Hoc Analyses of Pooled Data from 19 Phase 3/4 Clinical Studies [abstract]. Arthritis Rheumatol. 2021; 73

Cosentyx® secukinumab

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In PsA Patients

Secukinumab administration rapidly reduced both hsCRP and the NLR at Week 12 (PsO) or Week 16 (PsA/AxSPA) in high-risk patients defined by having high baseline hsCRP (all p< 0.01)

Median	PsO									
	Secukinu									
	300									
High-ris										
hsCRP (mg										
Baseline										
Week 12/16^										
Week 52										
NLR										
Baseline	2.8	2.9								
Week 12/16^	2.2*	2.3*	2.8	2.4*						
Week 52	2.2	2.3	-	2.2	2.4	-	2.1	2.2		

Placebo		
	mg	Placebo
4.8	6.2	-

NLR: Neutrophil to Lymphocyte Ratio
hsCRP: High Sensitivity CRP

Merola J, McInnes I, Deodhar A, Quebe-Fehling E, Aassi M, Peine M, Mehta N. Secukinumab Effects on Cardiometabolic Risk and Systemic Inflammation in Patients with Psoriasis, Psoriatic Arthritis and Axial Spondyloarthritis: Results from Post Hoc Analyses of Pooled Data from 19 Phase 3/4 Clinical Studies [abstract]. Arthritis Rheumatol. 2021; 73

Cosentyx® secukinumab

Median		PsO		PsA		AxSpA	
		Secukinumab		Secukinumab		Secukinumab	
		300 mg N=3,285	150 mg N=765	300 mg N=887	150 mg N=907	300 mg N=76	150 mg N=1,177
Serum Fasting Gluc	Baseline	5.2	5.2	5.2	5.2	4.8	5.0
	Week 52						
Sy pr							
D pr							
B (K							
R C							
Trig (mmol/L)	Week 52	1.4	1.6	1.4	1.4	1.1	1.2

Baseline is defined as the last observation, on the day of or before the first dose of study drug. Data are reported 'as observed' in patients with baseline value and at least one post-baseline value.

Reduction was maintained for at least 1 year of Secukinumab therapy in all traditional CV Risks

Cosentyx® secukinumab

Patient started Secukinumab with half loading dose
then continue on 2 vial sc every month with marked improvement of her condition as regards skin and the articular affection

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Real World Evidence

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Dermatol Ther (Heidelb). 2021 Oct; 11(5): 1733–1749.
Published online 2021 Aug 28. doi: 10.1007/s13555-021-00599-5
PMCID: PMC8484392
PMID: 34455554

Journal Article

Real-World Satisfaction with Secukinumab in Clearing the Skin of Patients with Plaque Psoriasis through 24 Months of Follow-Up: Results from US Dermatology Electronic Medical Records

April W. Armstrong,[1] Dhaval Patil,[2] Eugenia Levi,[2] Catherine B. McGuiness,[3] Xin Wang,[3] Yi Wang,[3] Chi-Chang Chen,[3] Elizabeth Nguyen,[2] and Paul S. Yamauchi[4]

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Associated Data

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These real-world findings highlight the high level of sustained satisfaction with secukinumab treatment for improving and maintaining skin clearance in patients with moderate-to-severe disease, regardless of prior treatment experience.

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SERENA Study

Lasting retention in patients with moderate to severe PsA

Real-world data show the majority of patients who started on Secukinumab remained on treatment for at least 2 years[1]

Patients with PsA who stayed on Secukinumab through **2 years** (n=534)[1]

SERENA study.
PsA=psoriatic arthritis.

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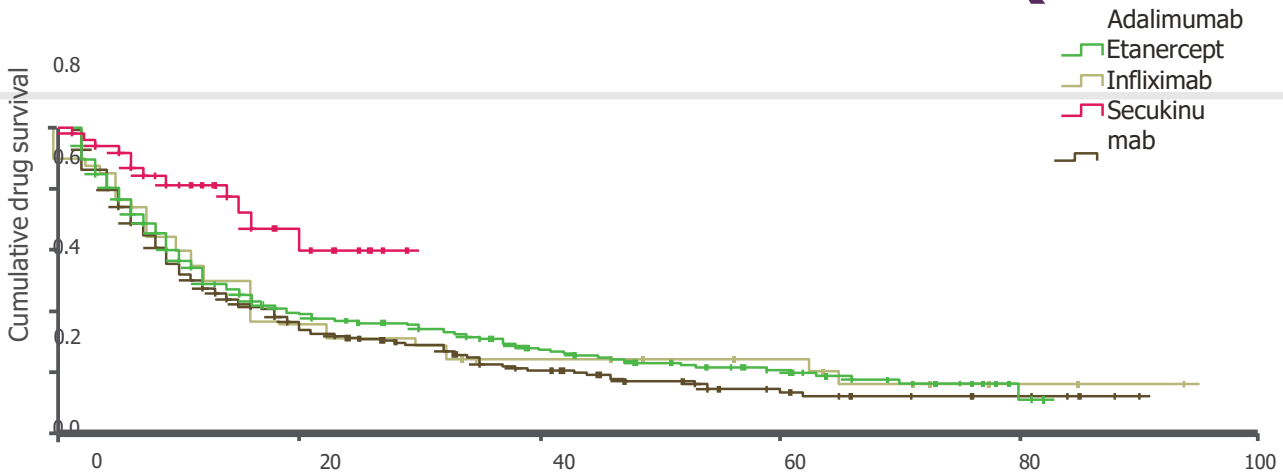
Haddad Study

Keep patients on treatment longer with Secukinumab

Real-world data show superior retention with Secukinumab vs other treatments (N=2301)[1]*



Haddad study.

Strong and lasting retention at 1 and 3 years

LORHEN Study

Real-world data show the majority of patients stayed on Secukinumab long-term[1]

79% **67%**

LORHEN study.
PsA=psoriatic arthritis.

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AQUILA Study

A biologic treatment patients stay on

Real-world data show most patients remained on treatment through Year 1 regardless of prior treatment experience[1]

Patients with PsA who continued on Secukinumab throughout 1-year analysis (n=641)

Biologic-naive patients **79%**

Patients pretreated with biologic **68%**

AQUILA study.
PsA=psoriatic arthritis.

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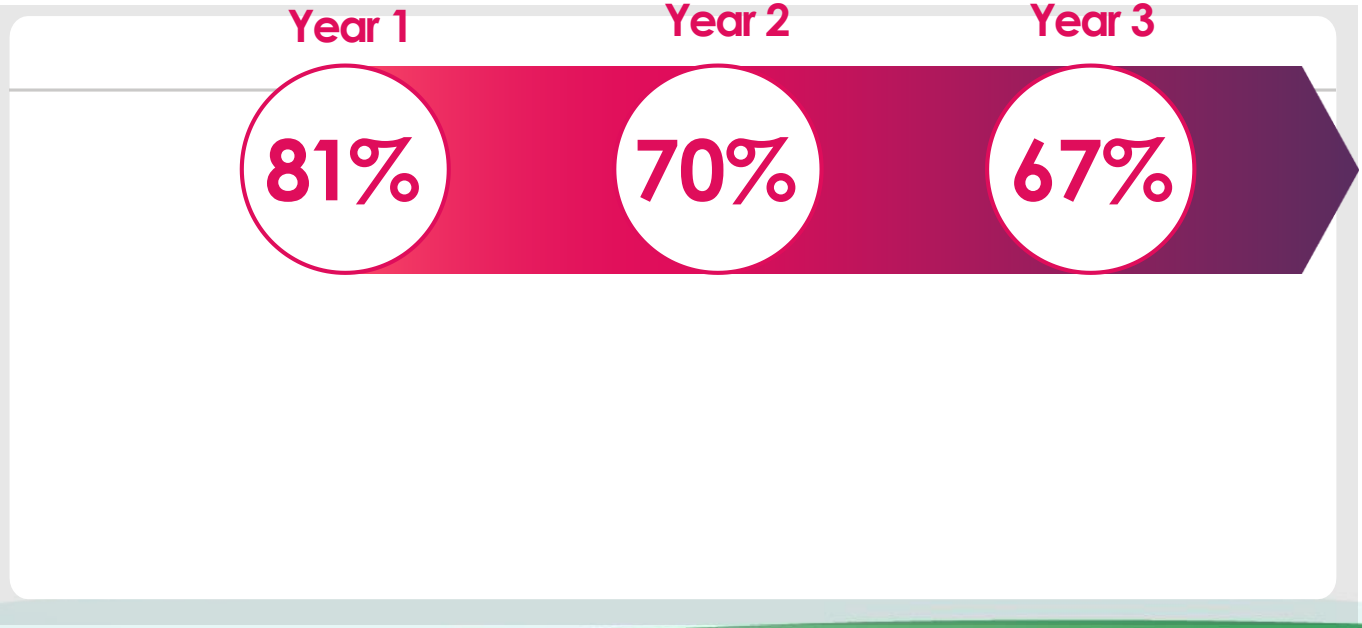
Strong and lasting retention for up to 3 years

Real-world data show lasting adherence in patients taking Secukinumab[1]

Patients with PsA who stayed on Secukinumab through **3 years** (n=350)[1]



BIOBADASER study.
PsA=psoriatic arthritis.

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