2024 EULAR recommendations in PsA

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Ioannina, October 2024

Conflicts of interest

- Honoraria/Speaker fees
  - Sandoz, Abbvie, Aenorasis, Pfizer, Novartis, UCB, Janssen, Lilly, Amgen, Boehringer-Ingelheim

OPEN ACCESS

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

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

- Task Force
- Steering group and 23 other experts
  - 19 different countries (of which 15 were EULAR countries)
  - 27 rheumatologists, 2 dermatologists, 1 infectious disease specialist, 2 PsA patients, 2 HPRs and 3 rheumatology/epidemiology fellows/trainees
- Updated recommendations from 2019
  - 7 OAPs (vs 6 in 2019)
  - 11 recommendations (vs 12 in 2019, due to merges)
    - only 4 are unchanged compared with 2019

The 7 Overarching Principles (OAP)

A. Psoriatic arthritis is a heterogeneous and potentially severe disease, which may require multidisciplinary treatment (unchanged).

B. Treatment of psoriatic arthritis patients should aim at the best care and must be based on a shared decision between the patient and the rheumatologist, considering efficacy, safety, patient preferences and costs.

C. Rheumatologists are the specialists who should primarily care for the musculoskeletal manifestations of patients with psoriatic arthritis; in the presence of clinically relevant skin involvement, a rheumatologist and a dermatologist should collaborate in diagnosis and management.

D. The primary goal of treating patients with psoriatic arthritis is to maximise health-related quality of life, through control of symptoms, prevention of structural damage, normalisation of function and social participation; abrogation of inflammation is an important component to achieve these goals (unchanged).

E. In managing patients with psoriatic arthritis, consideration should be given to each musculoskeletal manifestation and treatment decisions made accordingly (unchanged).

F. When managing patients with psoriatic arthritis, non-musculoskeletal manifestations (skin, eye and gastrointestinal tract) should be taken into account; comorbidities such as obesity, metabolic syndrome, cardiovascular disease or depression should also be considered.

G. The choice of treatment should take account of safety considerations regarding individual modes of action to optimise the benefit–risk profile (new).

Psoriatic arthritis

...or psoriatic disease

- Metabolic component
  - Diabetes (11-20%)
  - Obesity (16-60%)
    - Associates with PsA development and worse prognosis
  - Hypertension/CVD (28-47%/21-62%)
    - ⇧ CVD risk
      - ✓ Does not fully explained by classic CVD risk factors
  - Mental disorders
    - Depression (9-27%)
    - Anxiety (6-37%)

Kimball AB J Am Acad Dermatol. 2008
Krishnadas R Brain Behav Immun 2016
Nikiphorou E, Fragoulis GE Ther Adv Musculoskelet Dis. 2018

Charlton R et al Ann Rheum Dis 2018
McDonough E et al J Rheum 2014
Khraishi M et al Clin Rheum 2014
Husted JA et al Arthritis Care and Res 2014

PsA
Data from Greece

MEDITERRANEAN JOURNAL OF RHEUMATOLOGY | 34 4 2023

ORIGINAL PAPER

Disease Profile and Achievement of Therapeutic Goals in a Modern, Nationwide Cohort of 923 Patients with Psoriatic Arthritis

George E. Fragoulis[1*], Charalampos Papagoras[2*], Sousana Gazi[3], Evangelia Mole[3], Michael Krikelis[3], Paraskevi V. Voulgari[4], Evripidis Kaltsonoudis[4], Nikolaos Koletsos[4], Pelagia Katsimpri[5], Dimitrios Boumpas[5], Dimitrios Katsifis[5], Nikolaos Kougkas[6], Theodoros Dimitroulas[6], Petros P. Sfikakis[1], Maria G. Tektonidou[1], Chrysoula Gialouri[1], Dimitrios P. Bogdanos[7], Theodora Simopoulou[7], Christos Koutsianas[8], Eugenia Mavrea[8], Gkikas Katsifis[9], Konstantinos Kottas[9], Maria Konsta[10], Matthoula Tziafalia[10], Evangelia Kataxaki[11], Eleni Kalavri[12], Kalliopi Klavdianou[12], Eleftheria P. Grika[13], Charalampos Sfontouris[13], Dimitrios Daoussis[14], George Iliopoulos[14], Ilias Bournazos[15], Dimitrios Karokis[15], Konstantinos Georganas[15], Dimos Patrikos[15], Dimitrios Vassilopoulos[8]

PsA
Data from Greece

- 923 patients (55% females)
  - median (IQR) age of 57 (48-65) years

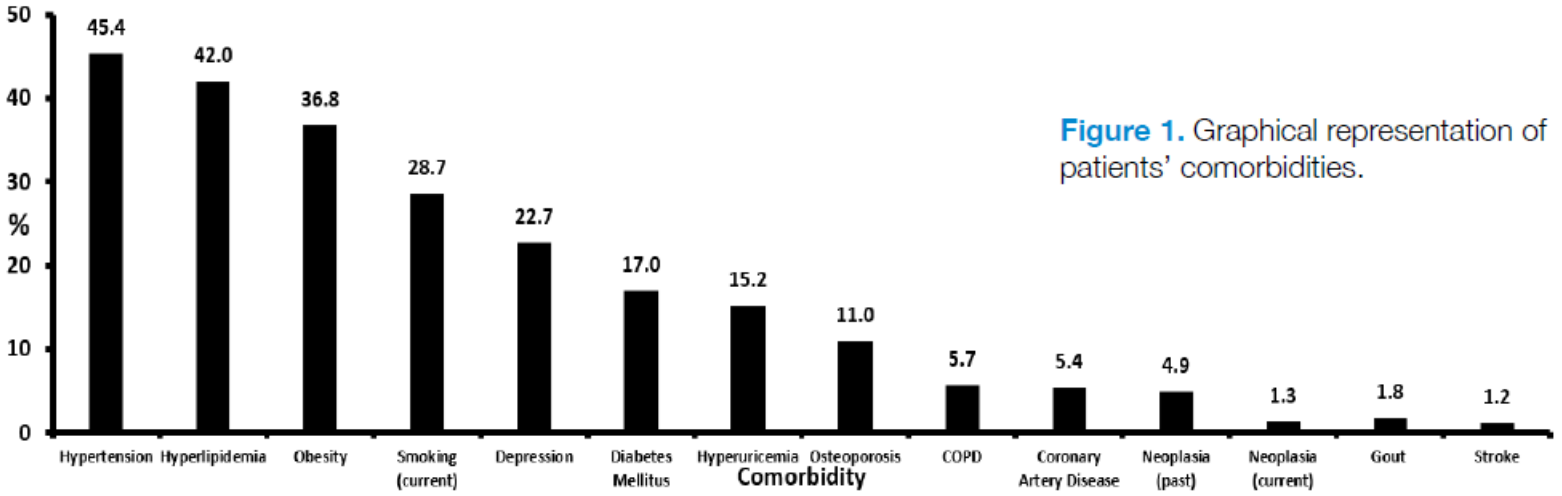


Figure 1. Graphical representation of patients' comorbidities.

PsA

Obesity – 3 problems…

- ⇧ BMI
  - ⇧ risk of PsA Development in patients with Psoriasis Or in healthy individuals
  - ⇧ risk of not reaching outcomes
  - ⇧ risk of not maintaining favourable outcomes

Different effects of the various b-tsDMARDs

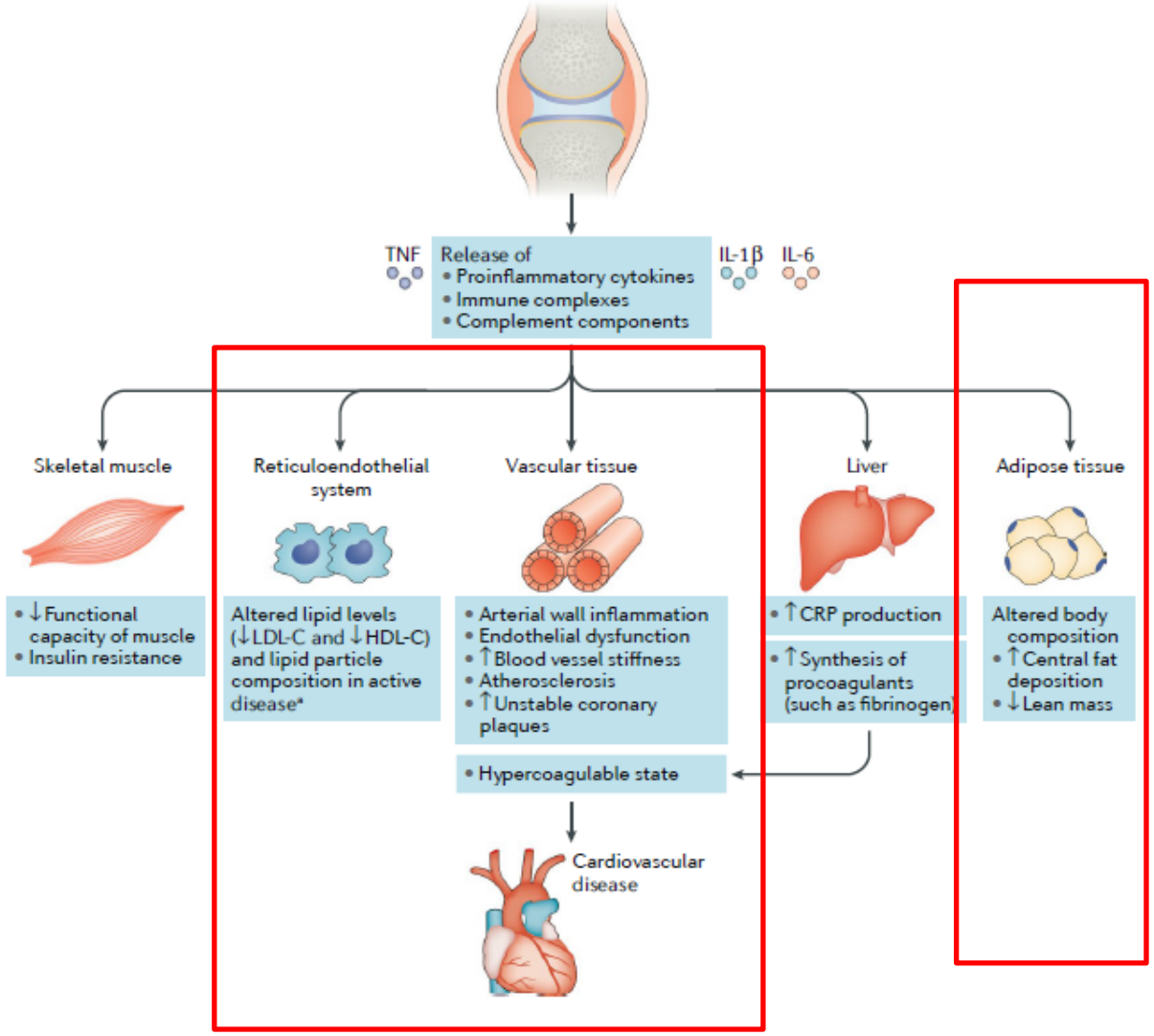
- Unfavourable effects of weight in the outcomes of index disease
  - are more pronounced for TNF-inhibitors Vs newer drug categories
- On the other hand….
  - The dose of some regimes is weight adjusted…

Drug category	RA	PsA	SpA
Abatacept			
JAK inhibitors			
IL-17 inhibitors			
IL-23 inhibitors			
IL-6R inhibitors			
Rituximab			
TNF inhibitors			

Patel S *et al,* Rheumatol Ther. 2022
Renzo LD et al, Dermatol Ther. 2011
Gialouri et al Autoimmunity reviews 2023

Cytokines and Comorbidities

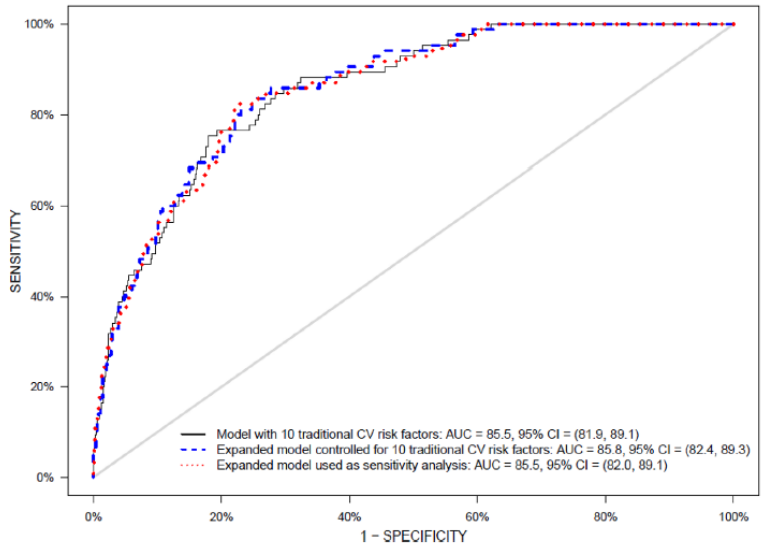
Cardiovascular risk – the big picture



Feguson L et al, Nat Rev Rheum 2019

PsA & CVD
Importacnce of controlling traditional risk factors

- Patients with psoriatic disease without CVD history
- Independent variables: CVD factors and PsD features
- Outcome: CVE
- 1992 and 2020, 85 of 1,336 (about 6%) participants developed CVE
- Model using traditional risk factors (e.g hypertension, obesity etc)
  - (AUC) of 85.5 (95% confidence interval [CI] 81.9–89.1)
  - Was not improved after including PsD features



Colaco et al Arthr & Rheum 2023

Recommendation 1

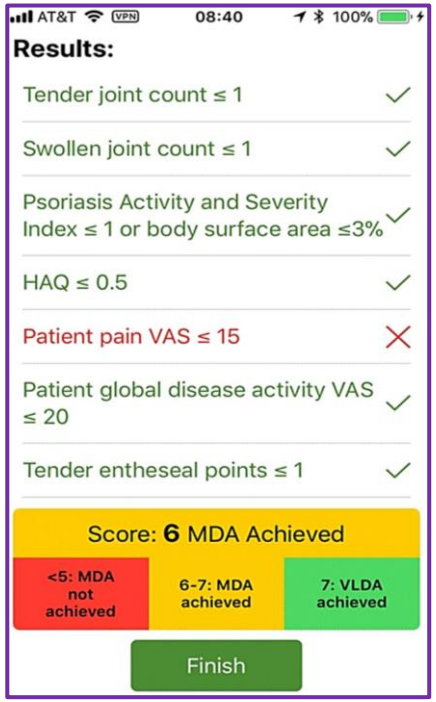
Treatment should be aimed at reaching the target of remission or, alternatively, low disease activity, by regular disease activity assessment and appropriate adjustment of therapy.

Table 1 Composite indices for PsA

	Synovitis TJC, SJC	Axial involvement	Enthesitis	Dactylitis	Skin	Pain	CRP	PtGA	PGA	Function/QoL
Disease activity										
DAPSA	+					+	+	+		
CPDAI	+	+	+	+	+					+
PASDAS	+		+	+			+	+	+	+
GRACE/AMDF	+				+	+		+		+
PsARC	+							+	+	
PsAJAI	+					+	+	+	+	+
MDA/VLDA	+		+		+	+		+		+

PsA, psoriatic arthritis; *TJC*, Tender Joint Count; *SJC*, Swollen Joint Count; *CRP*, C-reactive protein; *PtGA*, Patient Global Assessment; *PGA*, Physician Global Assessment; *QoL*, quality of life; *DAPSA*, Disease Activity for Psoriatic Arthritis; *PsARC*, Psoriatic Arthritis Response Criteria; *PsAJAI*, Psoriatic Arthritis Joint Activity Index; *GRACE*, Group for Research and Assessment of Psoriasis and Psoriatic Arthritis Composite Exercise; *AMDF*, Arithmetic Mean of Desirability Function; *PASDAS*, Psoriatic Arthritis Disease Activity Score; *CPDAI*, Composite Psoriatic Disease Activity Index; *MDA*, minimal disease activity; *VLDA*, very low disease activity

MDA



DAPSA

68TJC + 66SJC + CRP + Patient-Global + Patient-Pain	
Disease activity	*Score*
Remission	0-4
Low	5-14
Moderate	15-28
High	>28

Gialouri et al. Clin Rheum 2o21

Recommendation 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.

- Systemic steroids have been removed as an option
- But recognized that they can be used as bridging therapy and/or in polyarticular forms

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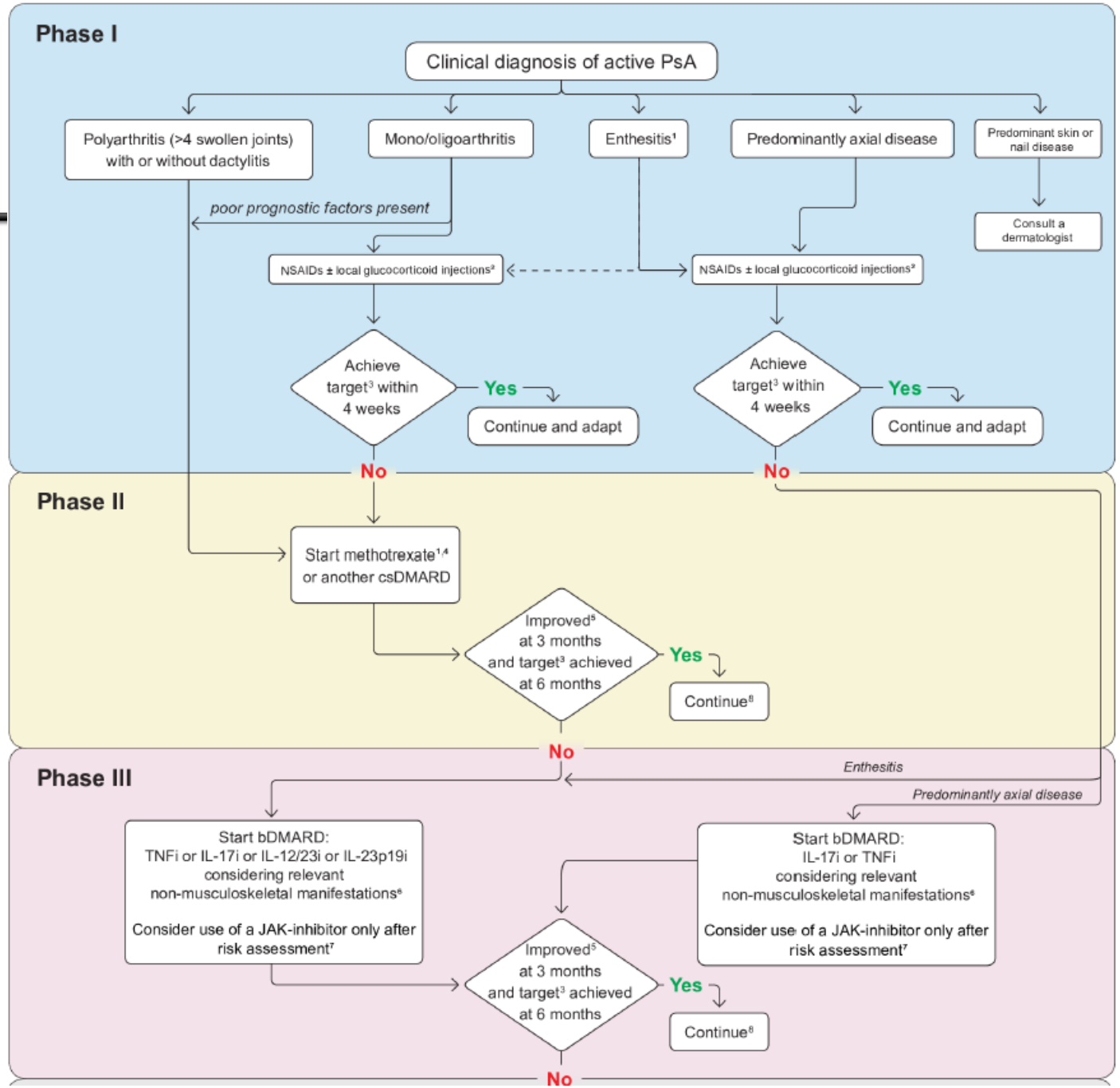
- 10% are receiving steroids at a regular basis


Phase I
Clinical diagnosis of active PsA
Polyarthritis (>4 swollen joints) with or without dactylitis
Mono/oligoarthritis
Enthesitis[1]
Predominantly axial disease
Predominant skin or nail disease
Consult a dermatologist
poor prognostic factors present
NSAIDs ± local glucocorticoid injections[2]
NSAIDs ± local glucocorticoid injections[2]
Achieve target[3] within 4 weeks
Yes
Continue and adapt
Achieve target[3] within 4 weeks
Yes
Continue and adapt
No
No
Phase II
Start methotrexate[1,4] or another csDMARD
Improved[5] at 3 months and target[3] achieved at 6 months
Yes
Continue[6]
No
Phase III
Enthesitis
Predominantly axial disease
Start bDMARD: TNFi or IL-17i or IL-12/23i or IL-23p19i considering relevant non-musculoskeletal manifestations[6]
Consider use of a JAK-inhibitor only after risk assessment[7]
Start bDMARD: IL-17i or TNFi considering relevant non-musculoskeletal manifestations[6]
Consider use of a JAK-inhibitor only after risk assessment[7]
Improved[5] at 3 months and target[3] achieved at 6 months
Yes
Continue[6]
No

Recommendation 3

In patients with polyarthritis or those with monoarthritis/ oligoarthritis and poor prognostic factors (eg, 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.

- Patients with oligoarticular disease and lack of poor prognostic factors should also receive a csDMARD, but there is less urgency for these patients given the more favourable long-term prognosis. The latter may receive csDMARDs after a longer delay, and potentially a period of symptomatic treatment alone.
  - Here comes the Difficult-to-Treat concept?
- Start with csDMARD
  - Usually MTX
    - ≥15mg/week (20-25mg in EULAR recommendations)
  - Leflunomide and Sulfasalazine are also valid options

MTX in PsA

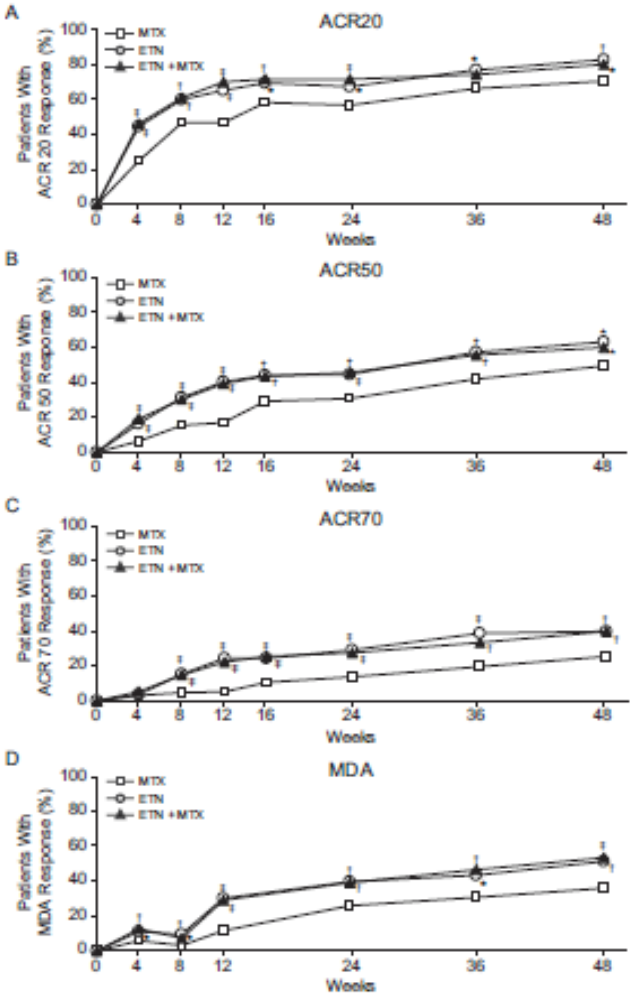
TICOPA study

- 188 patients received MTX in the first 12 weeks
  - >50% received ⩾15 mg/week
  - 86 patients reaching 25 mg/week at 12 weeks.
  - ACR20 40.8%, ACR50 18.8%, and ACR70 8.6%
  - 22.4% MDA, PASI75 27.2%
    - Trend for MDA in those ⩾15 mg/week
  - Leeds dactylitis instrument (LDI) scores decreased significantly
    - 62.7% decrease in patients with dactylitis, median change LDI -59.7, -157.4 to -26.4, p = 0.033

Coates et al J Rheum 2016
Wilsdon et al Cochrane Database Syst Rev 2019

SEAM-PsA

- SEAM-PsA
  - MTX Vs ETN Vs MTX+ETN
    - MTX-monotherapy (median dose of 20mg/week)
      - ✓ ACR20 50.7%
      - ✓ MDA 22.9%
      - ✓ enthesitis resolution in 43.1%
      - ✓ psoriasis was clear or almost clear in 66.3% at 24 weeks.
      - ✓ No placebo arm however…



Mease P, Arthr & Rheum 2019
Merola J & Ogdie A Arthr & Rheumatol 2019

Recommendation 4

In patients with peripheral arthritis and an inadequate response to at least one csDMARD, therapy with a bDMARD should be commenced.

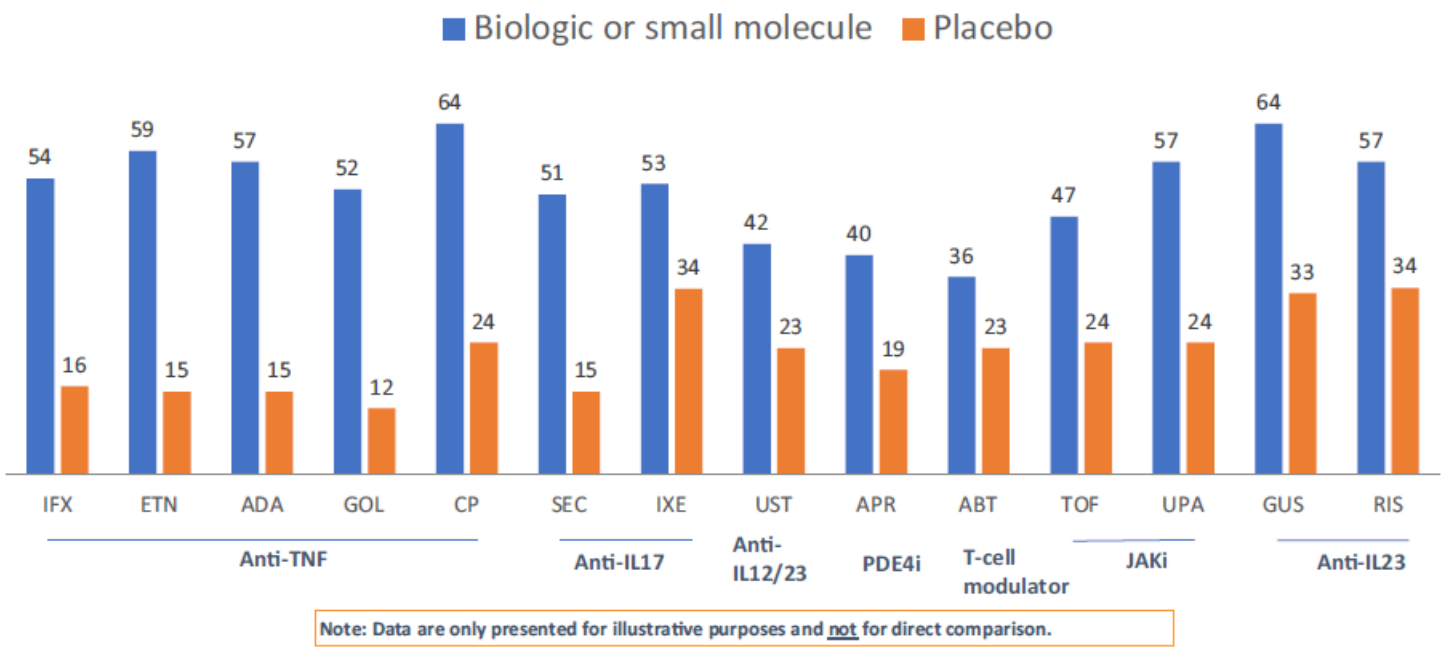
Recommendation 5

In patients with peripheral arthritis and an inadequate response to at least one bDMARD, or when a bDMARD is not appropriate, a JAKi may be considered, taking safety considerations into account.

- After csDMARDs
  - bDMARD
    - At this stage bDMARDs > JAKi (safety/efficacy ratio, cost, experience)
    - Joints: TNFi=IL-17i
    - Skin: IL-17>IL-17i

Biologic and Small-molecule Therapies for PsA: Efficacy Data from Registration Trials

Patients achieving ACR20% Response in Phase 3 PsA Trials

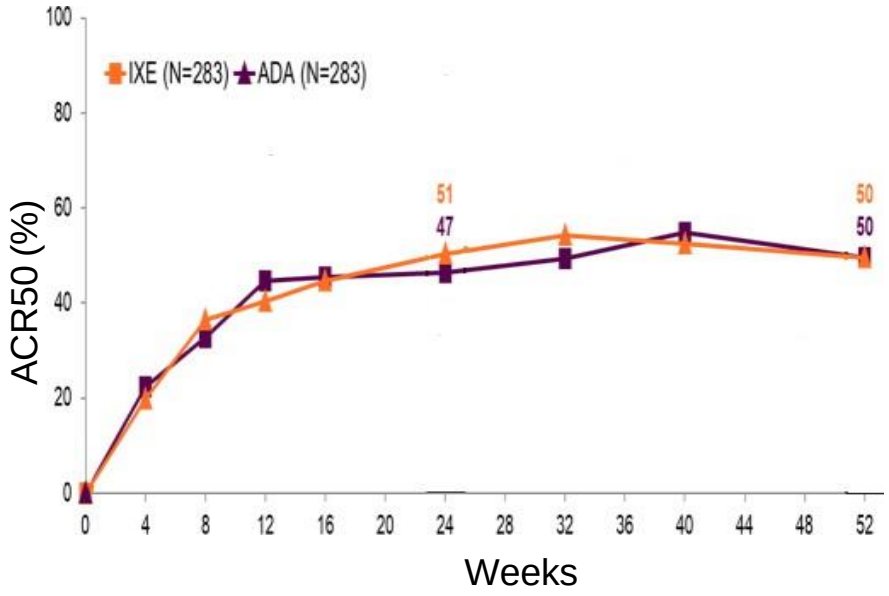


Note: Data are only presented for illustrative purposes and not for direct comparison.

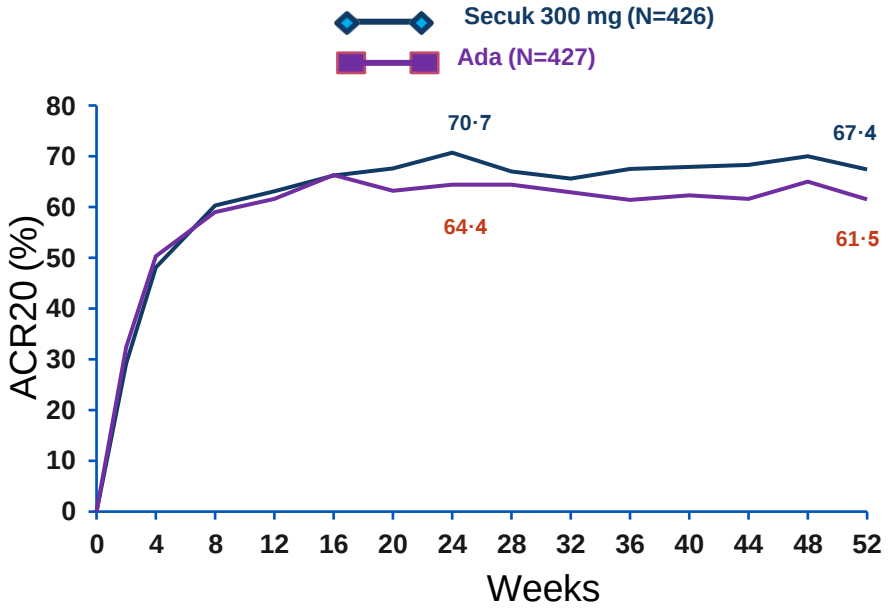
Lubrano et al Rheum Ther 2023
Kumthekar et al Clin Rheum 2023

2 head-to-head trials, IL-17Ai vs adalimumab (PsA): similar efficacy on joints

SPIRIT H2H: ixekizumab vs adalimumab,
%ACR50 at 1 year



EXCEED: secukinumab vs adalimumab,
%ACR20 at 1 year



Smolen JS, et al. Ann Rheum Dis. 2020 Jan
McInnes I et al, Lancet. 2020 May

Recommendation 5

In patients with peripheral arthritis and an inadequate response to at least one bDMARD, or when a bDMARD is not appropriate, a JAKi may be considered, taking safety considerations into account.

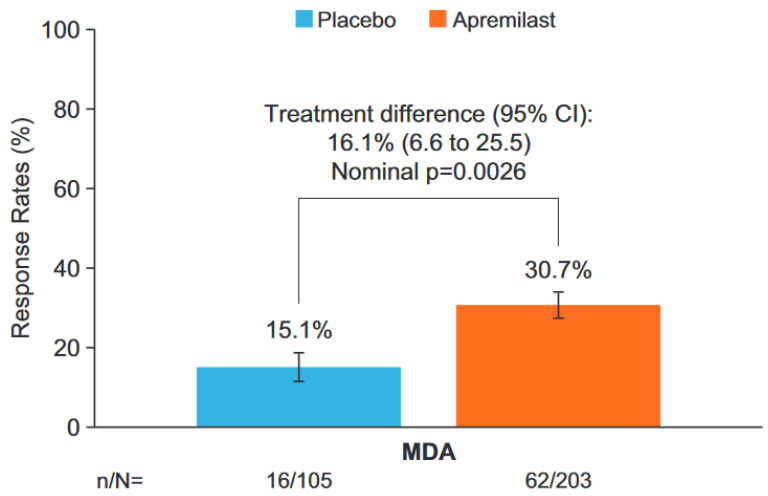
- Lack of data for PsA
  - Lending from RA
  - Higher frequency of risk factors (e.g obesity)
- *For JAKis, caution is needed for patients
  - aged 65 years or above
  - current or past long-time smokers
  - Hx of CVD or other cardiovascular risk factors
  - Other malignancy risk factors
  - Known risk factors for venous thromboembolism
- Wording is open for interpretation
  - Consider also patient's preferences

Recommendation 6

In patients with mild disease and an inadequate response to at least one csDMARD, in whom neither a bDMARD nor a JAKi is appropriate, a PDE4 inhibitor may be considered.

- Mild disease
  - Oligoarticular
  - Entheseal?
  - Without significant skin
- No data on inhibition damage progression

- Foremost trial
  - early (symptom duration ≤5 years)
  - Oligoarticular PsA: APR Vs PBO for 24w
  - Primary endpoint: % MDA @w16



Coates et al ARD 2024

Recommendation 7

In patients with unequivocal enthesitis and an insufficient response to NSAIDs or local glucocorticoid injections, therapy with a bDMARD should be considered.

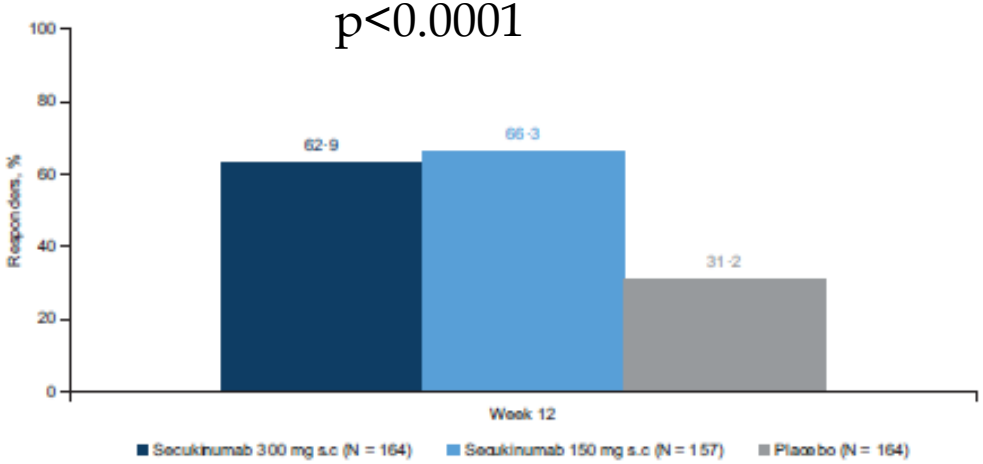
- Careful of overtreatment
- Not enough data for MTX
  - Although there might be some efficacy
  - All bDMARDs are equally effective
  - JAKi are also an option and also effective

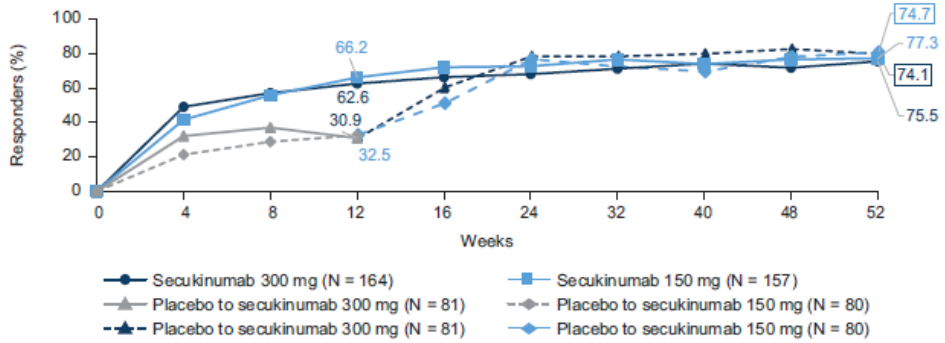
Recommendation 8

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

- Axial Disease
  - 2–5% of PsA patients have ONLY axial disease
  - About 20–30% of PsA patients have axial disease (radiologic + clinical)
  - IL-17i, TNFi, JAKi work well
    - IL-17 first here…
  - IL-23?
    - To be seen…

p<0.0001



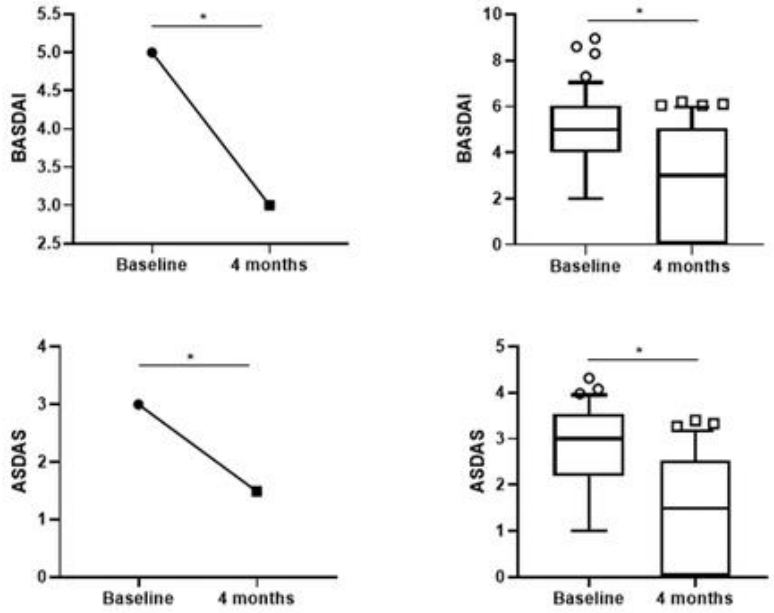


Baraliakos X, et al. Ann Rheum Dis. 2021

IL-23 in PsA

Real-life data

- 67 PsA patients with axial involvement (Subjective + XR OR MR)
  - Received anti-IL-23 for 4 months
  - In 27 patients
    - MRIs before and after
  - Significant BASDAI and ASDAS improvement
  - MRI: ⇩ > 0.80 score SI was observed in 70.3% of pts
    - Paralleled clinical improvement

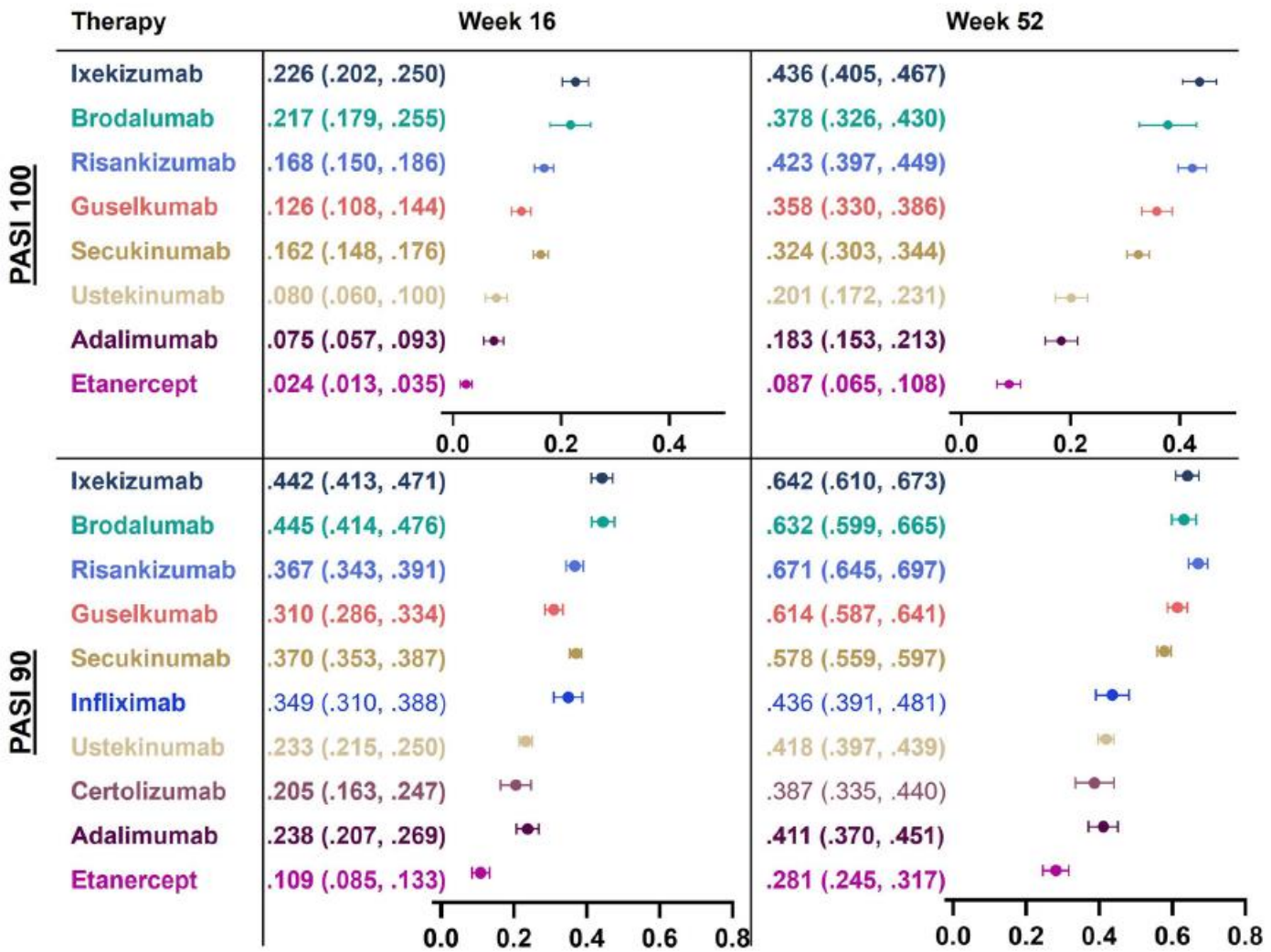


Ruscitti et al Rheumatology (Oxf) 2024

Recommendation 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-23 inhibitor or IL-12/23 inhibitor or a JAKi.

Psoriasis
Network Meta-analysis



Blauvelt et al Derm Ther 2022

Uveitis

How often in PsA

- Not very often
  - About 4% (also in Greece)
    - Association with axial disease
    - Association with family History of SpA

Rheumatology International (2023) 43:2081–2088
https://doi.org/10.1007/s00296-023-05424-0

Rheumatology
INTERNATIONAL

OBSERVATIONAL RESEARCH

Higher frequency but similar recurrence rate of uveitis episodes in axial spondylarthritis compared to psoriatic arthritis. A multicentre retrospective study

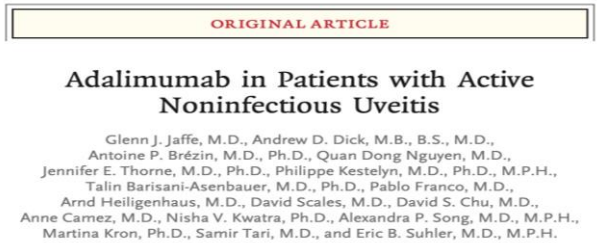
Nikolaos Kougkas[1] · Konstantina Magiouf[2] · Chrysoula G. Gialouri[2,3] · Gerasimos Evangelatos[4] · Maria Pappa[2] · Aikaterini Dimouli[5] · Alexios Iliopoulos[3] · Anastasios Karmanakos[5] · Theodoros Dimitroulas[1] · Maria G. Tektonidou[2] · Petros P. Sfikakis[2] · George E. Fragoulis[2]

Delmas et al RMDOpen 2023
Kougkas et al Rheum Int 2023

Uveitis

Treatment options - II

- Adalimumab
  - Approved for uveitis (non-anterior)
- Certolizumab, infliximab, golimumab
  - Have also good results
- Etanercept, Secukinumab, Ixekizumab
  - Not-effective
- Tofacitinib, Upadacitinib, Filgotinib, IL-23i
  - No data yet
- Bimekizumab
  - Promising??

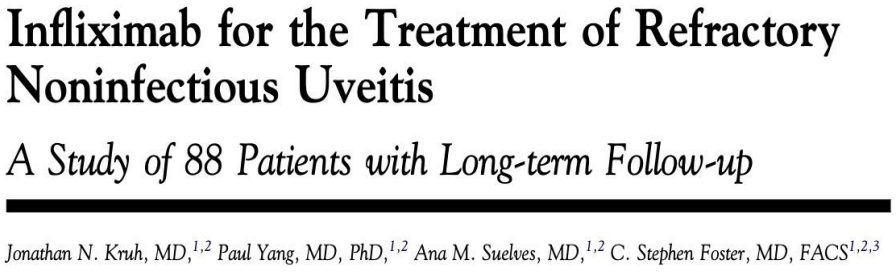

ORIGINAL ARTICLE

Adalimumab in Patients with Active Noninfectious Uveitis

Glenn J. Jaffe, M.D., Andrew D. Dick, M.B., B.S., M.D., Antoine P. Brézin, M.D., Ph.D., Quan Dong Nguyen, M.D., Jennifer E. Thorne, M.D., Ph.D., Philippe Kestelyn, M.D., Ph.D., M.P.H., Talin Barisani-Asenbauer, M.D., Ph.D., Pablo Franco, M.D., Arnd Heiligenhaus, M.D., David Scales, M.D., David S. Chu, M.D., Anne Camez, M.D., Nisha V. Kwatra, Ph.D., Alexandra P. Song, M.D., M.P.H., Martina Kron, Ph.D., Samir Tari, M.D., and Eric B. Suhler, M.D., M.P.H.


Reduction of anterior uveitis flares in patients with axial spondyloarthritis on certolizumab pegol treatment: final 2-year results from the multicenter phase IV C-VIEW study

Irene E. van der Horst-Bruinsma, Rianne E. van Bentum, Frank D. Verbraak, Atul Deodhar, Thomas Rath, Bengt Hoepken, Oscar Irvin-Sellers, Karen Thomas, Lars Bauer and Martin Rudwaleit


Infliximab for the Treatment of Refractory Noninfectious Uveitis

A Study of 88 Patients with Long-term Follow-up

Jonathan N. Kruh, MD,[1,2] Paul Yang, MD, PhD,[1,2] Ana M. Suelves, MD,[1,2] C. Stephen Foster, MD, FACS[1,2,3]


Reduced Occurrence Rate of Acute Anterior Uveitis in Ankylosing Spondylitis Treated with Golimumab — The GO-EASY Study

Rianne E. van Bentum, Sjoerd C. Heslinga, Michael T. Nurmohamed, Andreas H. Gerards, Ed N. Griep, Charlotte B.J.M. Koehorst, Marc R. Kok, Anna M. Schilder, Marijn Verhoef, and Irene E. van der Horst-Bruinsma

Rademacher J et al Ther Adv Mus Dis 2020
Fragoulis & Siebert Rheumatology 2020
Dick AD et al. Ophthalmology 2013

Psoriatic arthritis

IBD

- 1.2% of PsO
- ~3% of PsA (mainly CD)
  - Possibly higher in those with PsA-axial
  - Few are known for subclinical inflammation

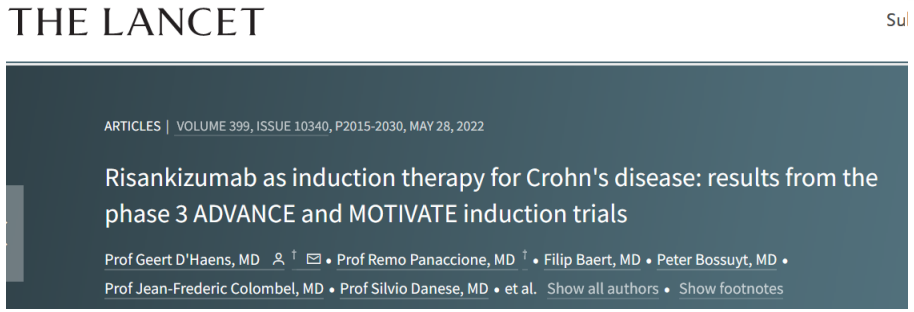
- Inflammatory bowel disease
  - Risk Ratio
    - Vs Healthy: 2.96 (1.40 - 6.00)
    - Vs Psoriasis 3.60 (1.83 – 7.10)

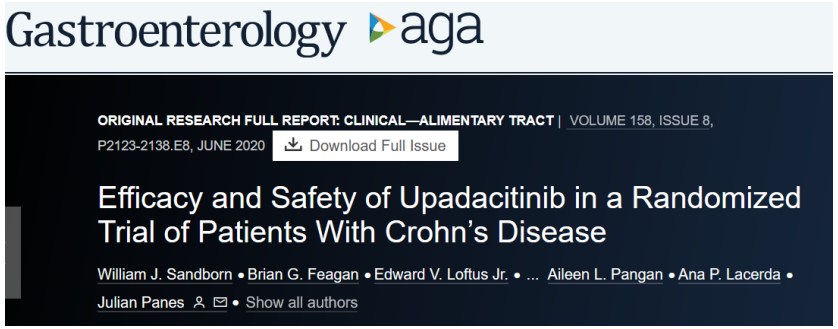
Charlton R et al Ann Rheum Dis 2018
McDonough E et al J Rheum 2014
Khraishi M et al Clin Rheum 2014
Husted JA et al Arthritis Care and Res 2014
Kimball AB J Am Acad Dermatol. 2008
Krishnadas R Brain Behav Immun 2016
Nikiphorou E, Fragoulis GE Ther Adv Musculoskelet Dis. 2018
Fragoulis GE et al Ther Adv Musc Dis 2020
Alinaghi et al J Crohns Colitis 2020
Jadon et al ARD 2017
Fragoulis et al Clin Exp Rheum 2022

Psoriatic arthritis

IBD Treatment

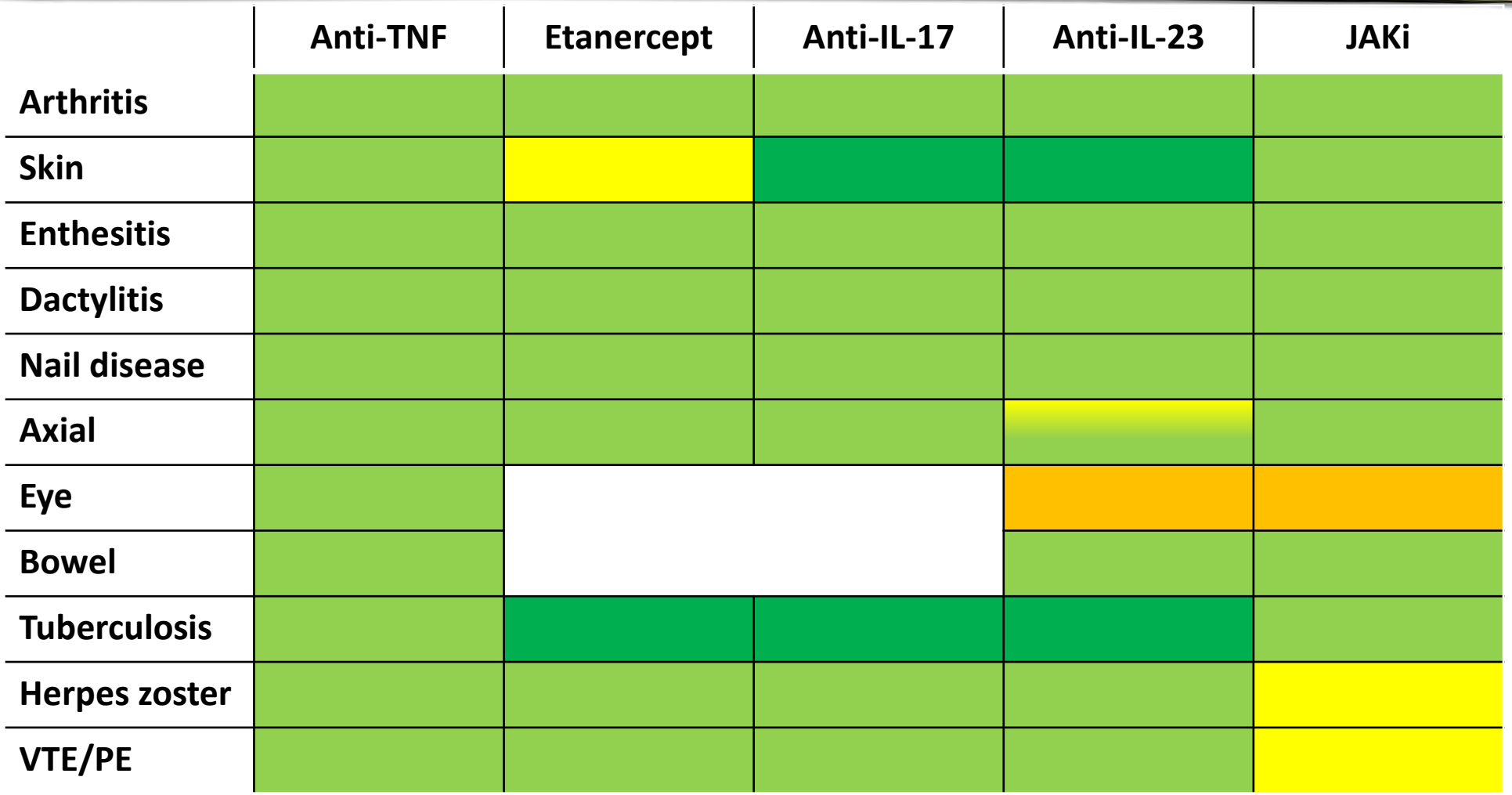
- Inflammatory bowel disease
  - Efficacy
    - Infliximab
    - Adalimumab
    - Ustekinumab
    - Certolizumab (CD)
    - Golimumab (UC)
    - Guselkumab (CD, UC: preregistration)
    - Risankizumab (CD: marketed, UC: registered)
    - Tofacitinib (UC, but NOT CD)
    - Upadacitinib





Whitlock SM et al J Am Acad Derm 2018
Feagan BG et al Lancet 2017
Sharma S et al Best clin Prac & Res Clin Rheum 2018

Table-update



Gialouri et al MJR 2022

Recommendation 10

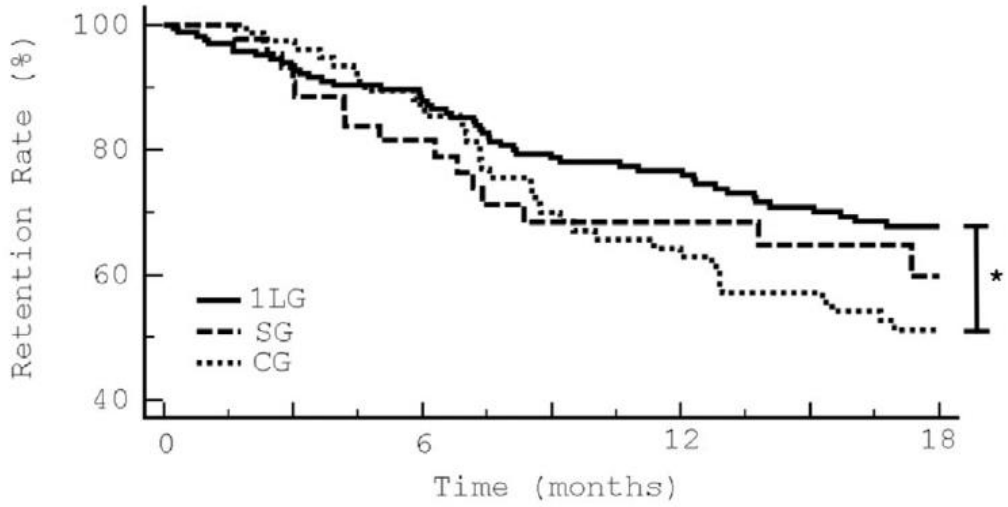
In patients with an inadequate response or intolerance to a bDMARD or a JAKi, switching to another bDMARD or JAKi should be considered, including one switch within a class.

- Not many data
- Switching/swapping seems to be the same, till now

EULAR PsA

ACR PsA

- Monocentric study
- PsA patients treated with b-ts DMARDs
- N=183
  - 1st line
  - Cycling (same mechanism of action)
  - Swapping
- No significant Differences in retention
  - Between cycling and Swaping



Alarico et al. Medicine 2020

Ixekizumab therapy following secukinumab inadequate response in psoriatic arthritis:

Switching in another IL-17i

- ✓ Retrospective study
- ✓ Failed to secukinumab (**SEC-IR**)
- ✓ Treated with ixekizumab (**IXE**)
- ✓ *SEC-IR*: - 21/24 (**88%**) ***peripheral arthritis***
  - 11/24 (**46%**) ***psoriasis***
  - 10/24 (**42%**) ***axial***

bDMARDs after SEC and prior to IXE	n (%)
None	11 (**45.8**)
1	9 (**37.5**)
2	3 (**12.5**)
3	1 (**4.2**)

n= **11**, **Group A**

n= **13**, **Group B**

A. Panagiotopoulos et al Rheum Int 2023

Results (2)

- ✓ **DAPSA improvement**: 15/24 patients

- 64% (7/11) Group **A**

- 62% (8/13) Group **B**

- ✓ **HAQ improvement** (p=0.004)

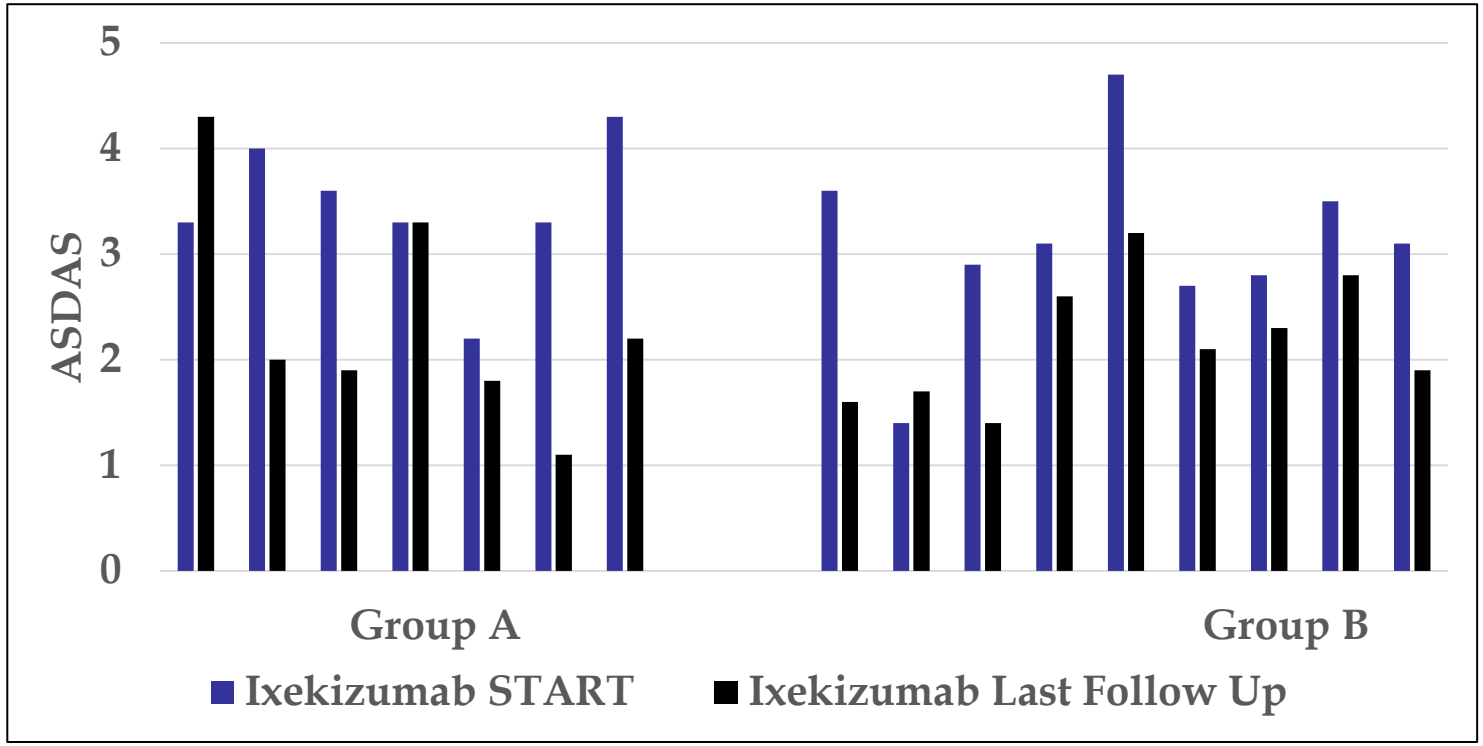
Parameters	Start of IXE	Last Follow Up	P
TJC, median (IQR)	4.5 (7)	2 (4)	0.001
SJC, median (IQR)	3.5 (4)	1 (2)	<0.001
BSA, mean (SD)	**8.7** (8.7)	**2.4** (3.3)	**0.001**
Enthesitis, n (%)	6 (25)	1 (4.2)	0.08
Dactylitis, n (%)	5 (20.8)	2 (8.3)	0.06
ESR – mm/h, mean (SD)	30.1 (18.7)	21.6 (13.8)	0.130
CRP – mg/dl, mean (SD)	1.5 (2)	0.7 (0.9)	0.144
DAPSA, mean (SD)	**22.8** (8.6)	**13.6** (7.8)	**<0.001**
ASDAS, mean (SD)	**3.2** (0.8)	**2.3** (0.7)	**0.004**
BASFI, mean (SD)	**5.2** (1.8)	**3.6** (1.8)	**0.011**
HAQ, mean (SD)	**0.9** (0.6)	**0.4** (0.3)	**0.004**
Concurrent cDMARDs, n (%)	6 (25)	13 (54.2)	
Concurrent glucocorticoids, n (%)	7 (29.2)	3 (12.5)	
Concurrent NSAIDs, n (%)	2 (8.3)	3 (12.5)	

Results (3)

✓ **ASDAS improvement (ΔASDAS ≥ 1.1)** : 8/16 patients

- **57%** (4/7) Group **A**

- **44%** (4/9) Group **B**



Recommendation 11

In patients in sustained remission, tapering of DMARDs may be considered.

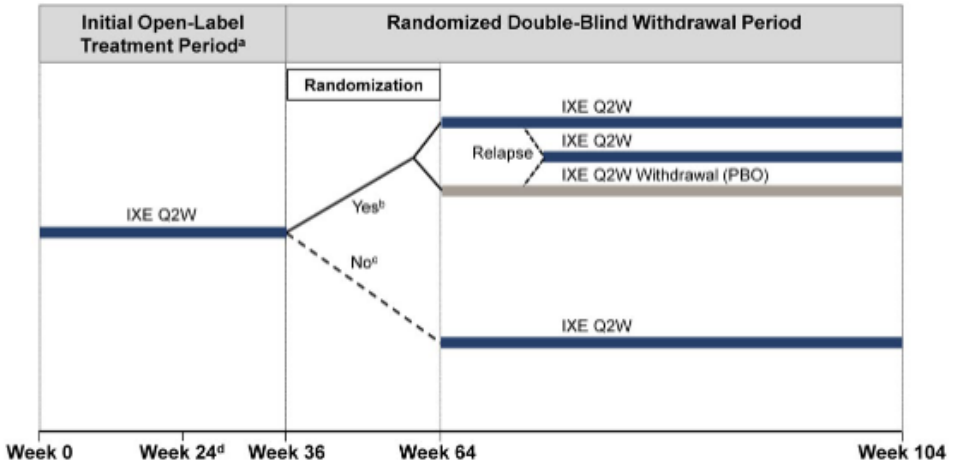
Table 2 Summary of TNFi tapering studies in PsA

Study	Study design	Population size	Population type	Regimen	Key results	Predictors of success
Cantini et al. [16]	Prospective case–control, Italy	76 patients (53 in tapered group; 23 in non-tapered group)	Patients with PsA with a disease duration < 24 months who required TNFi attending clinic from January 2008 – December 2010. Required to be in clinical remission for ≥ 6 months and not taking additional drugs including NSAIDs and steroids for 2 consecutive visits	Adalimumab dose tapered by increasing the interval from 40 mg every 2 weeks to 40 mg every month	47/53 patients in the tapered group maintained remission over mean follow up period of > 28 months	–
Janta et al. [13]	Cross-sectional, Spain	102 patients (28 in tapered group; 74 in non-tapered group)	Patients with PsA attending clinic from January – March 2014. Required MDA or maintained remission	TNFi dose tapered by increasing the interval between doses or reducing the absolute dose	23/28 patients in the tapered group were successfully maintained on a tapered TNFi dose for > 1 year	–
Lorenzin et al. [12]	Retrospective, Italy	141 patients (65 in tapered group, 76 in non-tapered group)	Patients with axial and/or peripheral PsA with limited skin involvement attending clinic over a 4-year period. Required to be in remission/MDA for ≥ 6 months	TNFi dose tapered by increasing interval between doses	Dose interval could be extended in 26/74 patients on adalimumab and 39/67 patients on etanercept	–
J et al. [abstract] [18]	Retrospective observational, Spain	37 patients (all tapered)	Patients with PsA with ≥ 1 year of clinical remission	Unclear	Patients (37 PsA in addition to 75 rheumatoid arthritis and 32 ankylosing spondylitis) were able to maintain remission on a tapered etanercept dose for approximately 2 and a half years, and on a tapered adalimumab dose for nearly 2 years	–
Fong et al. [14]	Retrospective, UK	83 patients (15 in tapered group; 68 in non-tapered group)	Patients with severe PsA (≥ 3 tender and swollen joints + active arthritis despite adequate trials of ≥ 2 DMARDs). Required DAS28-ESR ≤ 3.2 for ≥ 6 months and not taking regular NSAIDs or steroids	TNFi dose tapered by a third, either by extending dose-interval or reducing the absolute dose	9/15 patients in the tapered group were successfully maintained on a tapered TNFi dose for a mean of 1 year	Lower disease activity prior to TNFi tapering

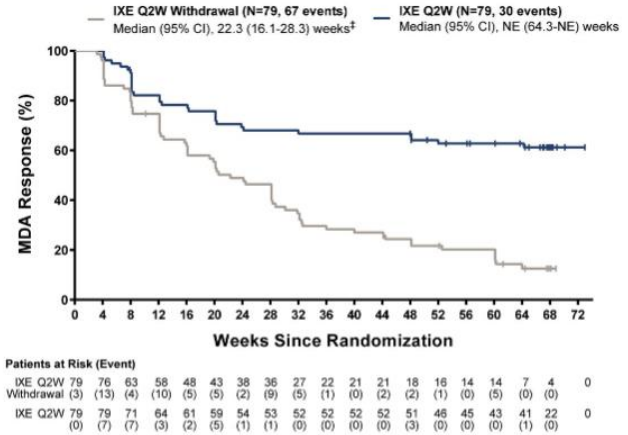
Ye et al. Drugs 2018

Recommendation 11

In patients in sustained remission, tapering of DMARDs may be considered.



- 158 patients
- Primary outcome: loss of MDA
- Disease relapse occurred more rapidly with treatment withdrawal (median 22.3 weeks compared to those who continued treatment with ixekizumab (P < 0.0001)
- Median time to achieving MDA again with retreatment was 4.1 weeks



Coates et al. Arthr & Rheum 2021

Recommendation 11

In patients in sustained remission, tapering of DMARDs may be considered.

- 60 patients with RA, PsA, or AS with sustained minimal disease activity (MDA)
  - 18-month, open-label, RCT
  - Intervention: doubled the dosing interval at baseline and discontinued etanercept 6 months later
  - Control: continued the standard dose for 6 months and doubled the dosing-interval thereafter.
  - Primary outcome: % maintaining MDA at 6 month follow-up
  - 6 months, MDA status was maintained in 47 patients (63%) in the intervention group and 56 (74%) in the control group (p = 0.15)
    - Results similar across diseases

Ruwaard et al. Scand J Rheum 2023

Take home messages

- Tailored approach as per
  - MSK manifestations (e.g axial)
  - Non-MSK (e.g eye, bowel)
  - Comorbidities (e.g obesity)
- More data needed for switching Vs Swapping
- Tapering is a valid option