Review in Internal Medicine 2026

Essentials of Rheumatology

Rattapol Pakchotanon, MD.

Division of Rheumatology

Phramongkutklao Hospital

PMK
RHEUMATOLOGY

Case 1

- 45M SLE/LN
- Presented with gout (first attack), no tophi
- CKD (eGFR 25 mL/min/1.73 m^2)
- Meds: HCQ, azathioprine, diuretic
- SUA 10 mg/dL, HLA-B*58:01 positive
- X-ray: erosions.
- Renal US: no stone.

Best management ?

A. Allopurinol
B. Febuxostat
C. Dotinurad
D. Benzbromarone
E. Lifestyle modification and stop diuretic only

Indications for pharmacologic urate-lowering therapy (ULT)

ACR 2020[1]	EULAR 2016[2]	TRA 2026
All gout with **- Frequent attacks (≥ 2/year)** **- Radiographic joint damage** **- Tophus or tophi** - Recurrent flare - First flare with • *CKD stage ≥ 3* • *SUA > 9 mg/dl* • *Urolithiasis*	**All gout with** **- Recurrent flares** **- Tophi** **- Urate arthropathy** **- Renal stones** - First flare with • *< 40 year* • *SUA > 8 mg/dl* • *Comorbidities: CKD, HT, IHD*	**All gout with** **- Frequent attacks (≥ 2/year)** **- Tophi** **- Joint damage** - First flare with • *CKD stage ≥ 3* • *SUA > 9 mg/dl* • *Urolithiasis*

1. John D. FitzGerald, et al. Arthritis Care & Research 2020
2. Richette P, et al. Ann Rheum Dis 2016

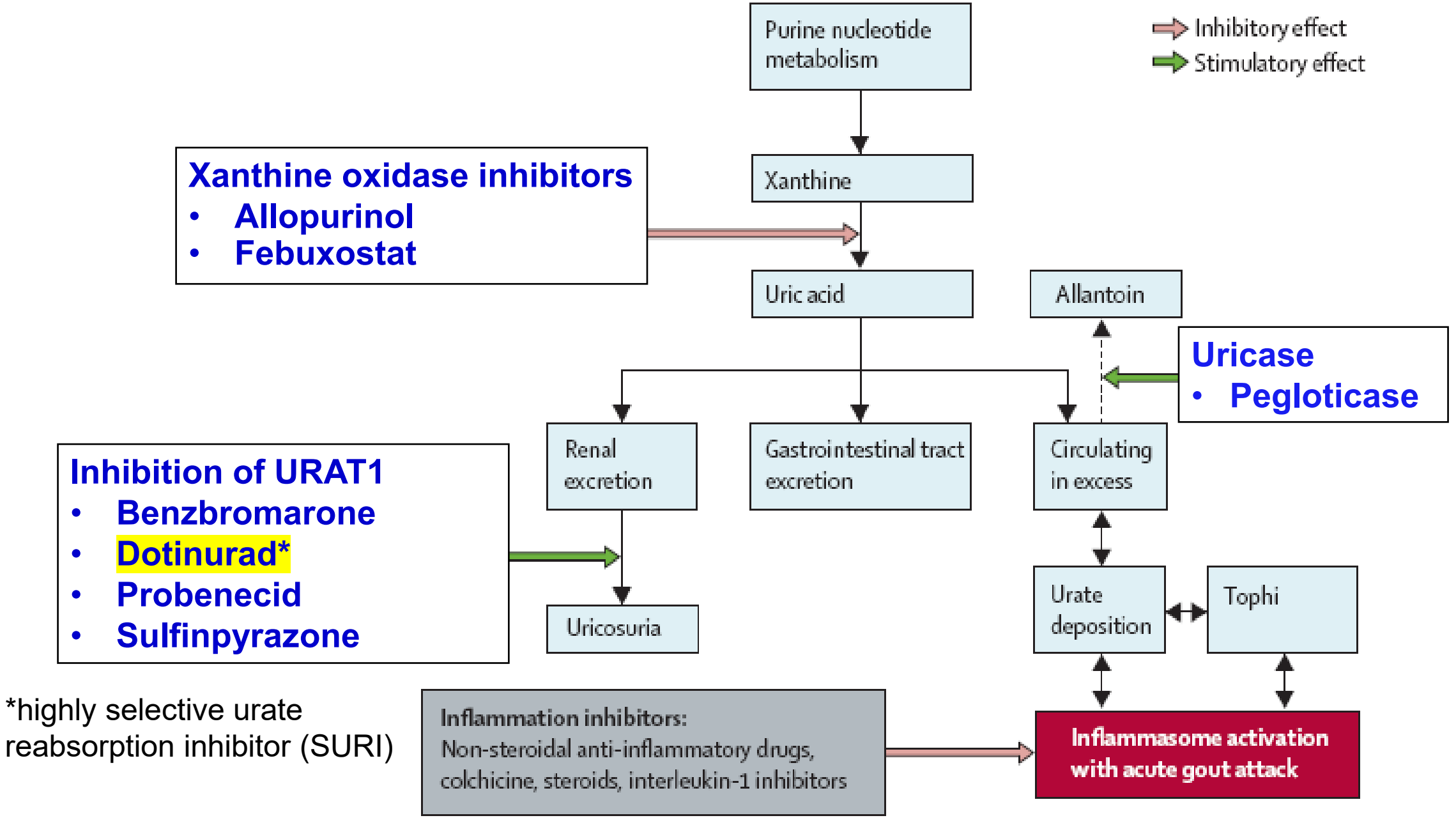
Link: Thairheumatology.org - For Physician

Long term management of Gout: “treat to target strategy”

Guidelines	ACR 2020[1]	EULAR 2016[2]	TRA 2026
General target	< 6 mg/dL	< 6 mg/dL	< 6 mg/dL
Target for severe gout	NA	< 5 mg/dL	NA
Long-term target	< 6 mg/dL	< 6 mg/dL	< 6 mg/dL

1. John D. FitzGerald, et al. Arthritis Care & Research 2020
2. 2. Richette P, et al. Ann Rheum Dis 2016

Link: Thairheumatology.org - For Physician



*highly selective urate reabsorption inhibitor (SURI)

Lancet , 2010

Clinical differences between allopurinol and febuxostat

Characteristics	Allopurinol	Febuxostat
Chemical structure and activity	Purine, Reversible, non-selective inhibitor of xanthine oxidase (reduced form)	Non-purine, Non-reversible, selective inhibitor of xanthine oxidase (oxidized/reduced form)
Excretion	Mainly kidney	Mainly intestine
Daily dose	100-800 mg	40-120 mg
Dosing in renal insufficiency	Dosage adjustment required (starting dose)	No dosage adjustment required in GFR > 30)
SCARs	1.6/1000 (Thais)	0.2/1000
Special consideration	Drug interaction (eg, azathioprine)	Drug interaction (eg, azathioprine) Cautious use in CVD or high CV risk

1. Yu KH. Recent Pat Inflamm Allergy Drug Discov 2007;1:69–75.
2. Edwards NL. Rheumatology (Oxford) 2009;48.
3. Reinders MK, et al. Clin Interv Aging 2010;5:7–18.
4. Hu M, et al. Ther Clin Risk Manag 2008;4:1209–1220.
5. Teng GG, et al. Drugs 2006;66(12),1547-1563
6. Limkobpaiboon S et al., Chula Med J 54(5):467–478.
7. Chen CH, et al. Clin Pharmacol Ther. 2019 Aug;106(2):391-401.

Risk factors for allopurinol-induced severe cutaneous adverse reactions (SCARs)

- Genetic risk
  - HLA-B*5801 allele ***TRA 2025 - "Conditionally recommend testing"***
    - Thai, HR = 348.3 (prevalent 14-19 %); Han Chinese, HR= 580; Japan, HR= 65.6
  - Other HLA-A*2402, DRB1*1302
- Non-genetic risk
  - Diuretics
  - CKD
  - Higher initial dose of allopurinol therapy

- 90% AHS occurred within 180 days after initiation
- SCARs = acute generalised exanthematous pustulosis (AGEP), drug reaction with eosinophilia and systemic symptoms (DRESS), Stevens–Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), and Stevens–Johnson/toxic epidermal necrolysis overlap syndrome (SJS/TEN).
- Pooled prevalence of HLA-B*58:01 genotyping in the allopurinol-tolerant group = 10% in Asian

Pharmacogenet. Genomics 2009; 9:704–709., Sci Rep 2025;15(1):30742.

Current uricosuric agent

Drug	Starting-maximum dose (mg/day)	Efficacy/safety data in eGFR (mL/min/1.73m²)	Remark
Probenecid	500-2000	> 50	High drug interaction (ASA, MTX, beta-lactam)
Benzbromarone	50-200	> 20	Strong CYP2C9 inhibition High drug interaction (ASA, Warfarin, Dilantin)
Sulfinpyrazone	100-800	> 30	Blood dyscrasias if dose 600-800 mg/day Phenylbultazone allergy
Dotinurad	1-4	> 30	

Case 2

- 67M, ESKD s/p kidney transplant, hyperparathyroidism, T2DM
- OPD: Acute monoarthritis (knee). No fever.
- Synovial fluid: rhomboid crystals, WBC 24,000, Gram stain negative.
- eGFR 50 mL/min/1.73 m^2.
- Meds: Tacrolimus, MMF, Fluconazole.

Best treatment?

A. Colchicine 0.6 mg BID

B. Intra-articular steroid

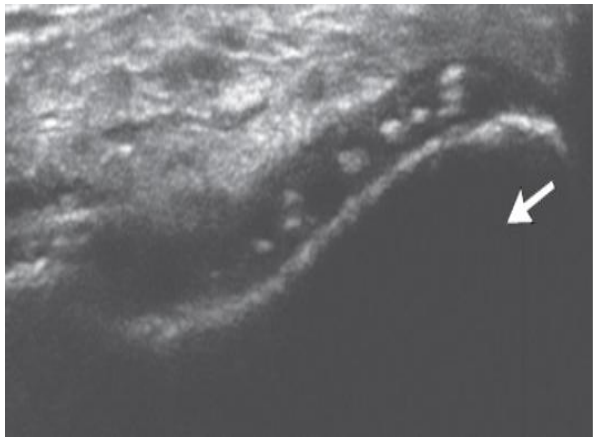
C. Prednisolone 30 mg daily

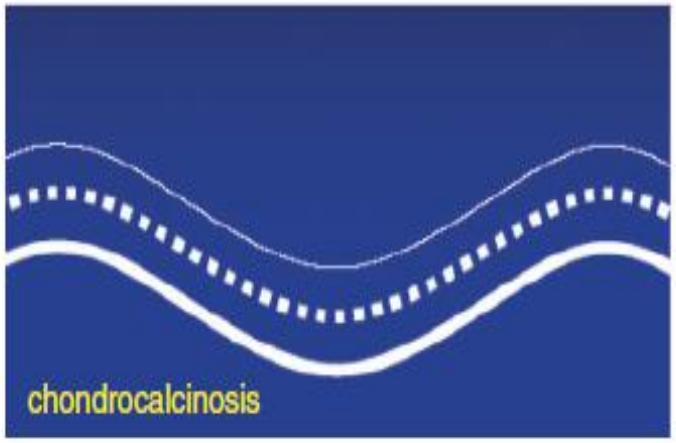
D. Naproxen 250 mg BID

E. ACTH

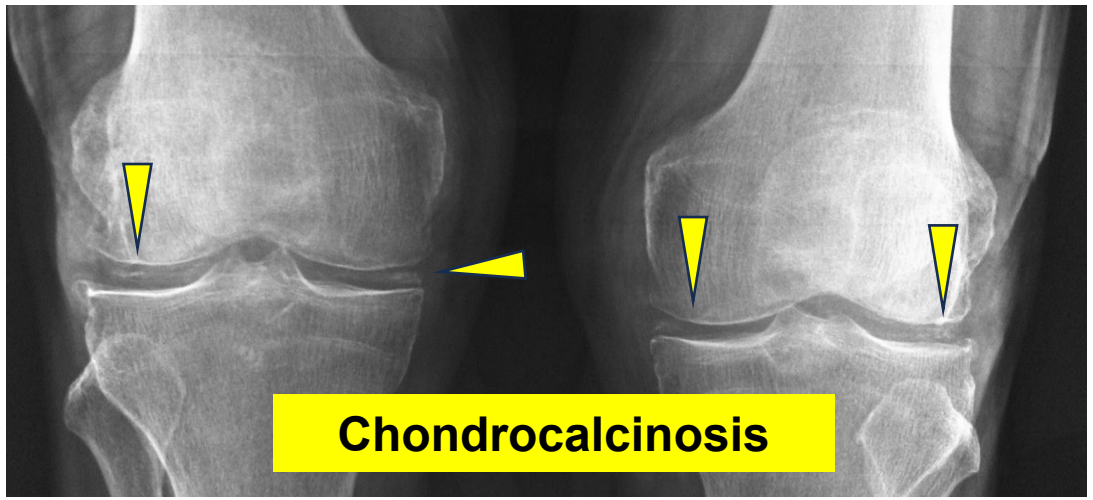
CPPD-associated arthropathies

Weakly, Positive Birefringent, Rhomboid Shape Crystal





US: Hyperechoic linear in midzone of cartilage

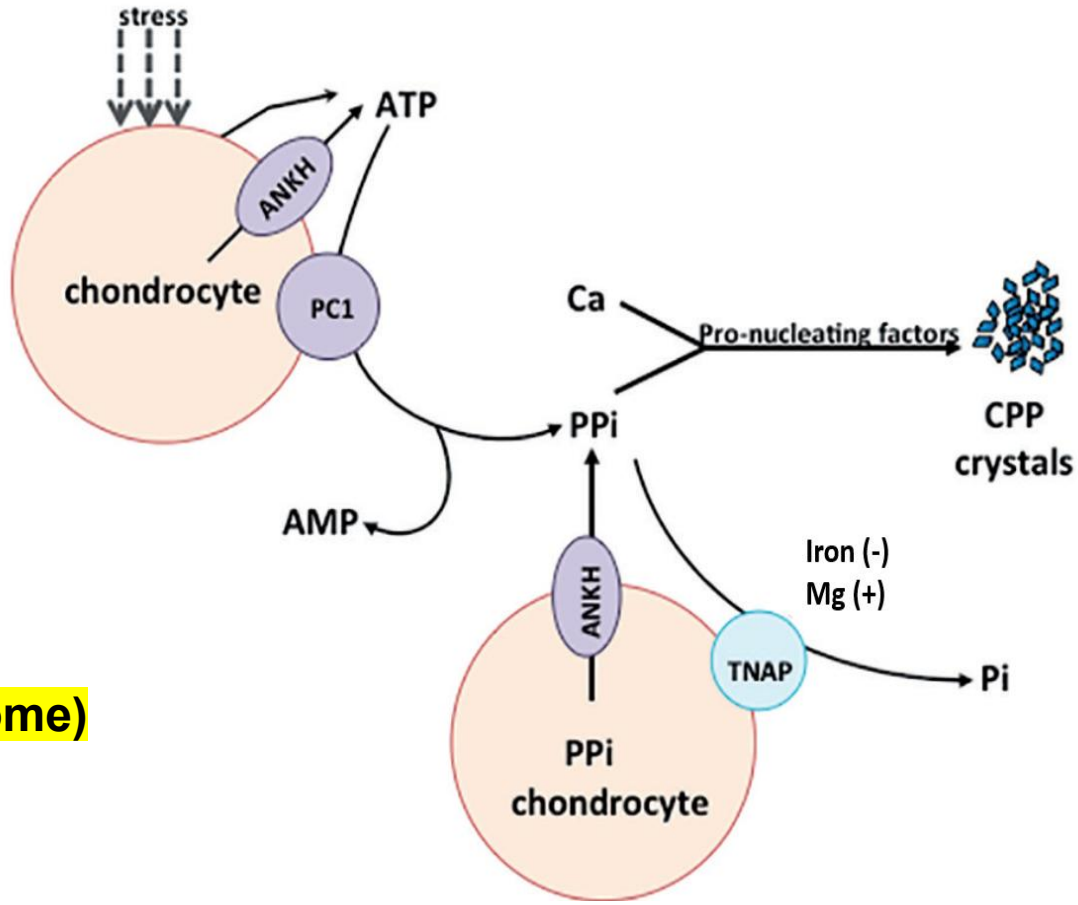


Chondrocalcinosis

CPPD-associated arthropathies

CPP crystal nucleation = Extracellular PPi (ePPi)/Pi + Calcium + Cartilage matrix

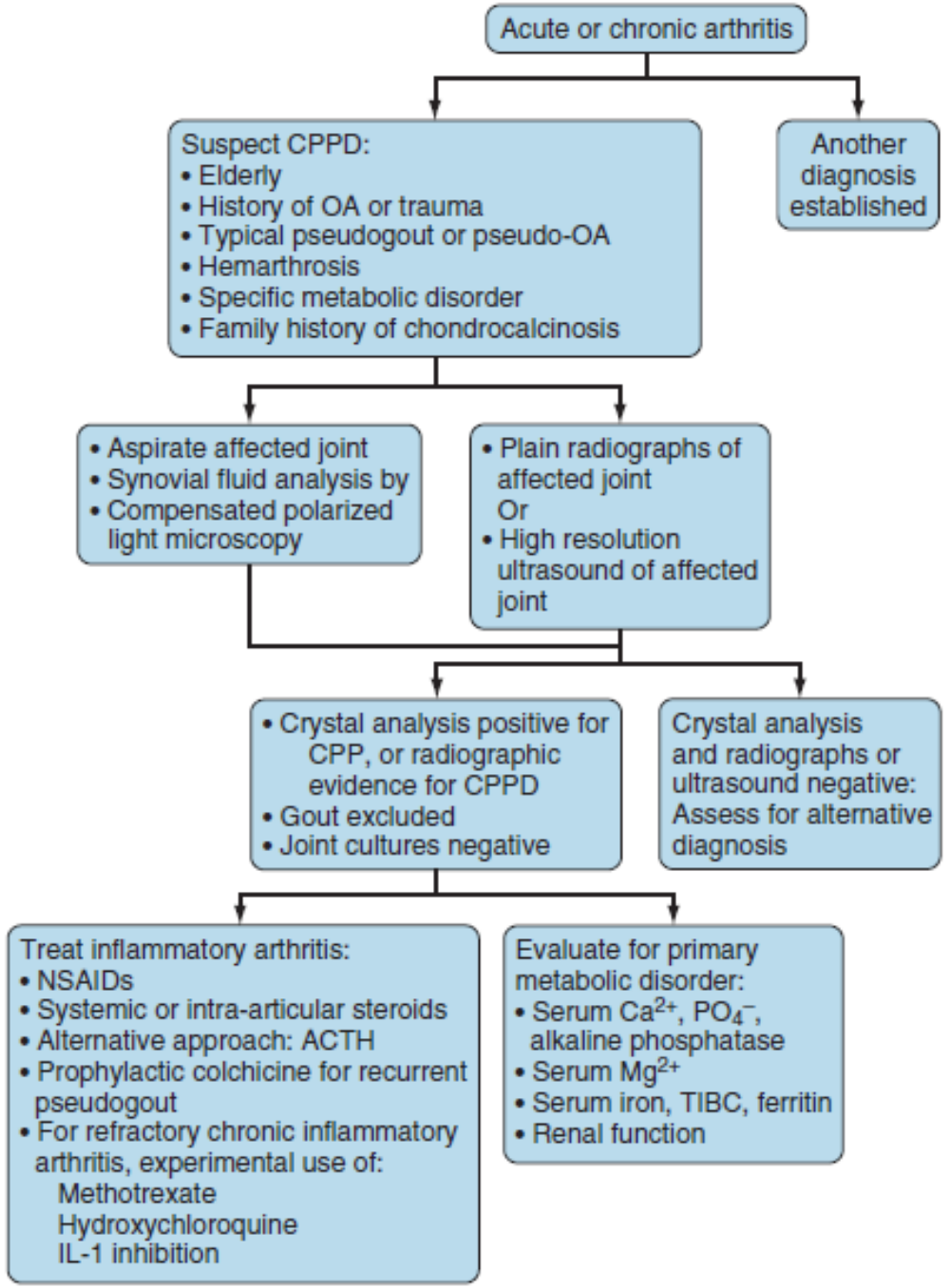
- Aging > 70 years
- OA
- Common: knee, wrist, shoulder
- Onset < 55 years
  - JIA
  - Meniscectomy
  - Joint trauma
  - Systemic disease (4H)
    - Hypophosphatasia (ALP)
    - Hyperparathyroid
    - Hemochromatosis (hereditary)
    - Hypomagnesemia (Gitelman-Bartter's syndrome)
    - Hypothyroidism
    - Acromegaly
    - Wilson's disease



Treatment of CPPD-associated arthropathies

Treat inflammatory arthritis:
- NSAIDs
- Systemic or intra-articular steroids
- Alternative approach: ACTH
- Prophylactic colchicine for recurrent pseudogout
- For refractory chronic inflammatory arthritis, experimental use of:
  - Methotrexate
  - Hydroxychloroquine
  - IL-1 inhibition

Evaluate for primary metabolic disorder:
- Serum Ca^{2+}, PO_4^-, alkaline phosphatase
- Serum Mg^{2+}
- Serum iron, TIBC, ferritin
- Renal function



Kelleys Textbook of Rheumatology 10th edition.

Acute treatment of crystal induced arthritis in CKD

CKD Stage ≤ 3

Prednisone 30mg taper over 5 days[a]

OR

Loading dose: Colchicine 1.2mg orally, and 0.6mg one hour later[b]
May continue as 0.6mg once or twice daily after day 1, until resolution
Consider changing treatment if no response after 36 hours[7]

OR

Intra-articular steroids if 1-2 joints affected

OR

Anakinra or canakinumab if above treatment fails or is contraindicated

CKD Stage > 3

Prednisone 30mg taper over 5 days[a]

OR

Intra-articular steroids if 1-2 joints affected

OR

Anakinra or canakinumab if above treatment fails or is contraindicated

Avoid colchicine if alternatives are available
May use as much as the loading dose of colchicine once with close monitoring, with no additional colchicine for 2 weeks[b]

Colchicine should be avoided in severe renal impairment (CLcr <30 ml/min)

*NSAIDs are contraindicated in CKD.

Ostrowski et al. AJKD 2025

ตารางที่ 3 ขนาด รูปแบบ และระยะเวลาการบริหารยารักษาเกาต์กำเริบเฉียบพลัน

ชื่อยา	ขนาดยา	รูปแบบยา	ระยะเวลาการใช้ยา
Colchicine	1.2 มก.ทันที 0.6 มก. 1 ชม. ถัดไป[$]	รับประทาน	วันแรก
	1.2 มก. ทันที 0.6 มก. ชม. ที่ 1 และ 12[^]	รับประทาน	วันแรก
	0.5-0.6 มก. ทุก 8-12 ชม.[%,^]	รับประทาน	จนกว่าจะหาย
NSAIDs	ตามขนาดแนะนำของยาแต่ละตัว	รับประทาน	จนกว่าจะหาย
Prednisolone	30-35 มก./วัน	รับประทาน	4-5 วัน
ACTH	100 หน่วยสากล[#]	ฉีดเข้ากล้ามเนื้อ	ครั้งเดียว
Betamethasone	7 มก.	ฉีดเข้ากล้ามเนื้อ	ครั้งเดียว
Triamcinolone acetonide	40 มก.	ฉีดเข้ากล้ามเนื้อ	ครั้งเดียว
	20-40 มก.*	ฉีดเข้าข้อ	ครั้งเดียว

ACTH; adrenocorticotropic hormone, ชม.; ชั่วโมง, มก.; มิลลิกรัม

*ขึ้นอยู่กับขนาดของข้อ, [#] international unit, [$] Terkeltaub RA, et al Arthritis Rheum 2010,[^] Laosuksri P, et al. IJRD 2023, [%] Roddy E, et al. Ann Rheum Dis 2020

Link: Thairheumatology.org - For Physician

Colchicine prophylaxis dose

GFR (ml/min)	Colchicine oral dosage (mg/day)
≥ 50	0.6 mg bid
35-49	0.6 mg OD
10-34	0.6 mg Q 2-3 days
<10 or on hemodialysis or significant hepatic or biliary dysfunction	Avoid colchicine
Aged ≥ 70 years	50% of usual maintenance dose

Guidelines for colchicine dosing in the presence of CYP3A4/P-glycoprotein inhibitors

FDA classification	Concomitant drug	Dosing recommendations	
		Acute gout flare	Prophylaxis of gout flares
Strong P-gp inhibitor	**Cyclosporine** ***(Tacrolimus)***	0.6 mg then repeated no earlier than 3 days	0.3 mg once/day or 0.3 mg every other day
Strong CYP3A4 inhibitors	**Clarithromycin** **Ketoconazole** **Itraconazole** **Ritonavir**	0.6 mg then repeated no earlier than 3 days	0.3 mg once/day or 0.3 mg every other day
Moderate CYP3A4 inhibitors	**Diltiazem** **Verapamil** **Erythromycin** **Fluconazole** **Grapefruit juice**	1.2 mg then repeated no earlier than 3 days	0.6 mg once/day or 0.3 mg once/day
Weak CYP3A4 inhibitor	**Azithromycin**	No dose reduction	No dose reduction
Other potentially significant drug-drug interactions	**Statin , fibrate, or digoxin**	No dose reduction Should be monitored for any signs or symptoms of muscle	No dose reduction Should be monitored for any signs or symptoms of muscle

Terkeltaub et al, arthritis & rheumatism, 2011

Case 3

- A 65F with RA on MTX 10 mg/week + PRED 5 mg/day for 3 month
- Today: improvement (PGA 8→6/10), but still has functional limitation and tender joints, without swelling.
- ESR improved but elevated (50 mm/hr, last 80 mm/hr). ALT normal.
- X-ray: erosions, Anti-CPP/RF positive

Next step?

A. Observe 3 more months

B. Add 2 gm of sulfasalazine

C. Reduce prednisolone to 2.5 mg/day

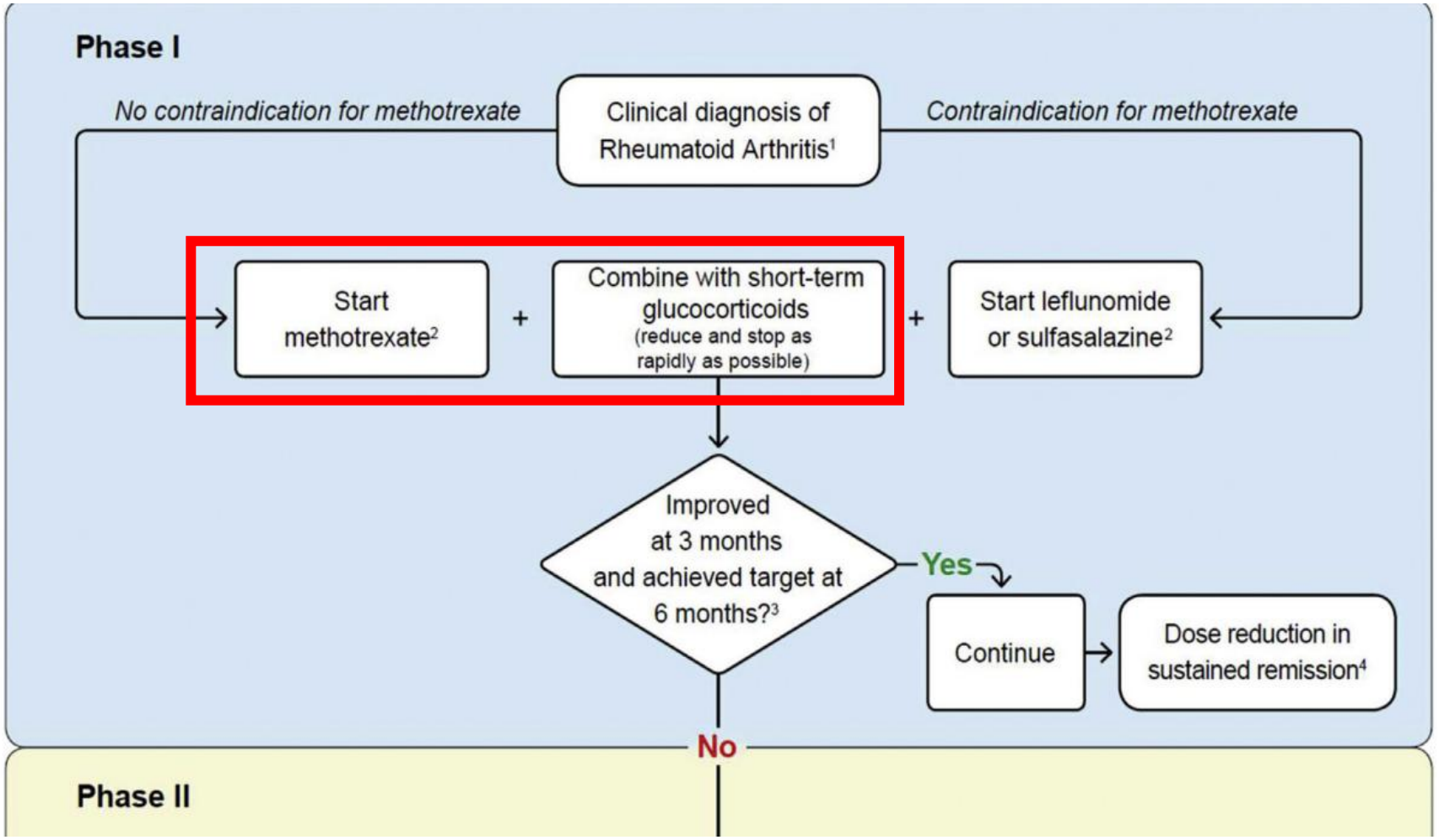
D. Increase prednisolone to 7.5 mg/day

E. Increase methotrexate to 15 mg/week

2021 ACR Recommendation of RA

Recommendations	Certainty of evidence
Initiation of treatment in DMARD-naive patients with moderate-to-high disease activity	
Methotrexate monotherapy is **strongly** recommended over:	
Hydroxychloroquine or sulfasalazine	Very low/low‡
bDMARD or tsDMARD monotherapy	Very low/moderate
Combination of methotrexate plus a non–TNF inhibitor bDMARD or tsDMARD¶	Low/very low
Methotrexate monotherapy is **conditionally** recommended over:	
Leflunomide	Low
Dual or triple csDMARD therapy¶	Moderate
Combination of methotrexate plus a TNF inhibitor¶	Low
Initiation of a csDMARD without short-term (<3 months) glucocorticoids is **conditionally** recommended over initiation of a csDMARD with short-term glucocorticoids.	Very low
Initiation of a csDMARD without longer-term (≥3 months) glucocorticoids is **strongly** recommended over initiation of a csDMARD with longer-term glucocorticoids.	Moderate
Initiation of treatment in DMARD-naive patients with low disease activity	
Hydroxychloroquine is **conditionally** recommended over other csDMARDs.	Very low
Sulfasalazine is **conditionally** recommended over methotrexate.	Very low
Methotrexate is **conditionally** recommended over leflunomide.	Very low
Initiation of treatment in csDMARD-treated, but methotrexate-naive, patients with moderate-to-high disease activity#	
Methotrexate monotherapy is **conditionally** recommended over the combination of methotrexate plus a bDMARD or tsDMARD.**	Moderate/very low

EULAR recommendations for the management of RA 2026



- Target: Remission (or low disease activity if remission unlikely)
- Timeline: Aim within 6 months
- Adjust therapy if inadequate response by 3 months (~50% improvement expected)
- Sustained remission: ≥6 months (ACR/EULAR criteria)

"GC-bridging" should be considered when initiating or changing csDMARDs, in different dose regimens and routes of administration, but should be tapered and discontinued as rapidly as clinically feasible.

Smolen JS, et al. Ann Rheum Dis 2026;0:1–19

Standard target dose of csDMARDs

csDMARD	Dose	Maximum
Methotrexate	0.3 mg/kg/week	Max 15 mg/week
Hydroxychloroquine	5 mg/kg/day	Max 400 mg/day
Sulfasalazine	40 mg/kg/day	Max 3 g/day
Leflunomide	20 mg/day	
Azathioprine	2 mg/kg/day	

Poor prognostic factors

1. High acute phase reactant levels
2. High swollen joint count
3. Presence of RF and/or ACPA, especially at high levels
4. Presence of early erosions
5. Failure of 2 or more csDMARDs
6. Persistently moderate or high disease activity (after csDMARD therapy) according to composite measures including joint counts despite csDMARD therapy

May be consider early combination of csDMARDs (MTX, SSZ, HCQ) or initiation of biologic therapy

Case 4

- 55F with RA
- Meds: MTX (weekly), adalimumab (q2w), prednisolone 10 mg/day
- Planning elective TKA in 1 month.
- Stable disease. No neck pain, hoarseness, or dyspnea.
- HTN well-controlled; no active cardiac conditions.

Best perioperative medication management?

A. Continue all
B. Reduce prednisolone
C. Hold MTX 1 week pre-op
D. Hold adalimumab; schedule surgery ~3 weeks after last dose
E. C+D

Pre-operative evaluation in patient with RA

Pulmonary assessment

1. **The upper airway - arthritis of the cricoarytenoid joints and temporomandibular joints**
2. **Interstitial lung disease**

Cervical spine instability		
Atlanto axial subluxation (AAS)	Anterior Atlanto-Dental Interval (AADI)	> 5-8 mm.
	Posterior Atlanto-Dental Interval (PADI) or Space Available for the Cord (SAC)	< 14 mm.
Subaxial subluxation (SAS)	Subluxation occurring in joints on C3–C7 level	> 3.5 mm
Cranial settling (CrS)	Superior migration of the odontoid into foramen magnum	

Manczak M, et al. Reumatologia. 2017

Anterior Atlanto-Dental Interval (AADI), Posterior Atlanto-Dental Interval (PADI)

lateral neutral (A), flexion (B), extension (C)

Manczak M, et al. Reumatologia. 2017

2022 ACR/AAHKS Guideline (1)

ยาที่สามารถใช้ต่อได้ในช่วงผ่าตัด

	Dosing interval	Recommended timing of surgery since last medication dose
Medications to continue through surgery		
DMARDs: continue these medications through surgery (all patients)		
Methotrexate	Weekly	Anytime
Sulfasalazine	Once or twice daily	Anytime
Hydroxychloroquine	Once or twice daily	Anytime
Leflunomide (Arava)	Daily	Anytime
Doxycycline	Daily	Anytime
Apremilast (Otezla)	Twice daily†	Anytime†
Severe SLE-specific medications: continue these medications in the perioperative period in consultation with the treating rheumatologist‡		
Mycophenolate mofetil	Twice daily	Anytime
Azathioprine	Daily or twice daily	Anytime
Cyclosporine	Twice daily	Anytime
Tacrolimus	Twice daily (IV and PO)	Anytime
Rituximab (Rituxan)	IV every 4–6 months†	Month 4–6†
Belimumab SC (Benlysta)	Weekly†	Anytime†
Belimumab IV (Benlysta)	Monthly†	Week 4†
Anifrolumab (Saphnelo)§	IV every 4 weeks†	Week 4†
Voclosporin (Lupkynis)§	Twice daily†	Continue†

2022 ACR/AAHKS Guideline (2)

ยาที่แนะนำให้หยุดช่วงผ่าตัด

	Dosing interval	Recommended timing of surgery since last medication dose
Medications to withhold prior to surgery¶		
Biologics: withhold these medications through surgery		
Infliximab (Remicade)	Every 4, 6, or 8 weeks	Week 5, 7, or 9
Adalimumab (Humira)	Every 2 weeks	Week 3
Etanercept (Enbrel)	Every week	Week 2
Golimumab (Simponi)**	Every 4 weeks (SQ) or every 8 weeks (IV)	Week 5 Week 9
Abatacept (Orencia)	Monthly (IV) or weekly (SC)	Week 5; week 2
Certolizumab (Cimzia)	Every 2 or 4 weeks	Week 3 or 5
Rituximab (Rituxan)	2 doses 2 weeks apart every 4–6 months	Month 7
Tocilizumab (Actemra)	Every week (SC) or every 4 weeks (IV)	Week 2; week 5
Anakinra (Kineret)	Daily	Day 2
IL-17 secukinumab (Cosentyx)	Every 4 weeks	Week 5
Ustekinumab (Stelara)	Every 12 weeks	Week 13
Ixekizumab (Taltz)§	Every 4 weeks†	Week 5†
IL-23 guselkumab (Tremfya)§	Every 8 weeks†	Week 9†
JAK inhibitors: withhold this medication 3 days prior to surgery#		
Tofacitinib (Xeljanz)	Daily or twice daily†	Day 4†
Baricitinib (Olumiant)§	Daily†	Day 4†
Upadacitinib (Rinvoq)§	Daily†	Day 4†
Not severe SLE: withhold these medications 1 week prior to surgery		
Mycophenolate mofetil	Twice daily	1 week after last dose†
Azathioprine	Daily or twice daily	1 week after last dose
Cyclosporine	Twice daily	1 week after last dose†
Tacrolimus	Twice daily (IV and PO)	1 week after last dose†
Rituximab (Rituxan)	Every 4–6 months	Month 7
Belimumab IV (Benlysta)	Monthly†	Week 5†
Belimumab SC (Benlysta)	Weekly†	Week 2†

Glucocorticoid Management

- Use of more than 10 mg of glucocorticoids per day (vs. no glucocorticoid use) resulted in a predicted risk for hospitalized infection of 13.25% and a predicted 1-year cumulative incidence of PJI of 3.83%.
- A lower cumulative GC dose was not associated with hypotension.
- 2022 ACR/AAHKS conditionally recommended patients with rheumatic disease undergoing THA or TKA who are receiving GCs, continuing their current daily dose of GCs rather than administering supraphysiologic doses of GCs on the day of surgery.

Chukir T, et al. ACR Open Rheumatol 2021
George MD, et al. Ann Intern Med. 2019

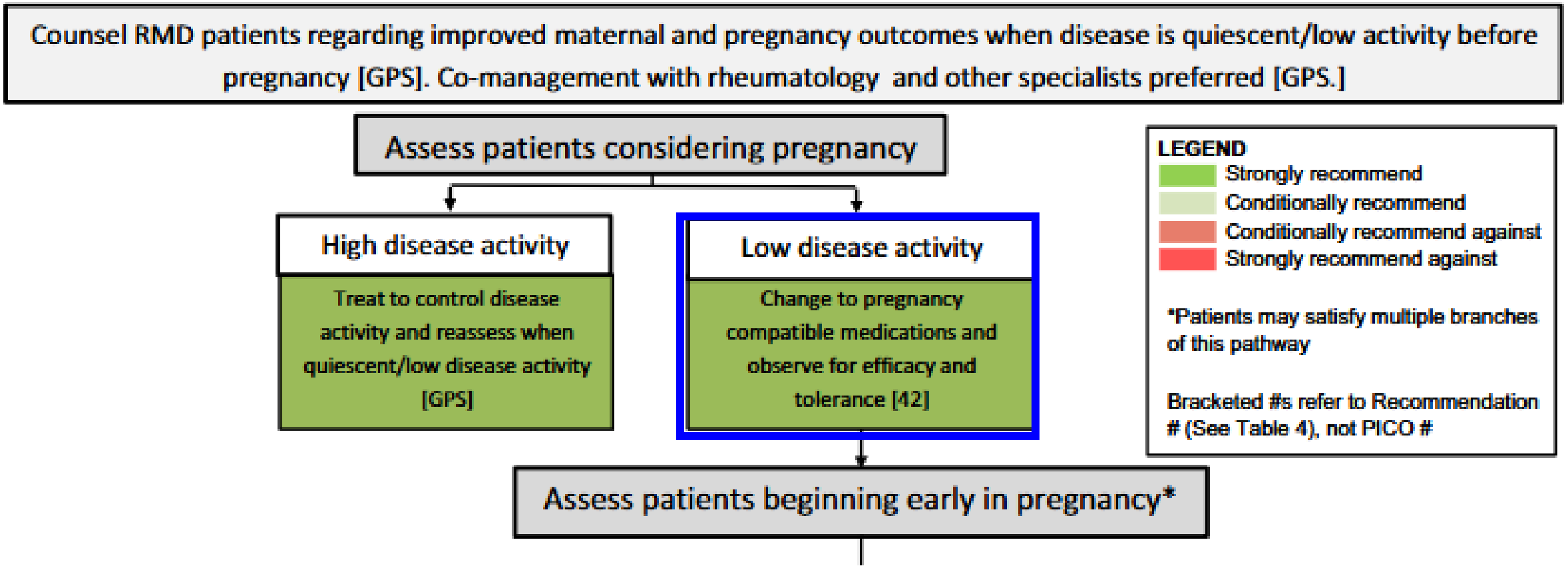
Case 5

- 29F with SLE in remission ×12 months
- Planning pregnancy.
- On prednisolone 5 mg/day, MMF, HCQ.

Best recommendation?

A. Continue all
B. Stop MMF ≥6 weeks before conception; continue others
C. Stop MMF → switch to azathioprine; observe 6 months before conception
D. Stop prednisolone
E. Continue only HCQ

2020 ACR Guideline for the Management of Reproductive Health in Rheumatic and Musculoskeletal Diseases



2020 ACR Guideline for the Management of Reproductive Health in Rheumatic and Musculoskeletal Diseases

Medication	Pre-conception	During pregnancy	Breastfeeding
Conventional medications			
Hydroxychloroquine	++	++	++
Sulfasalazine	++	++ Folic 5 mg/day	++
Colchicine	++	++	++
Azathioprine, 6-mercaptopurine	++	++	+ Low transfer
Prednisone	+ Taper to <20 mg/day by adding pregnancy-compatible immunosuppressants	+ Taper to <20 mg/day by adding pregnancy-compatible immunosuppressants	+ After a dose of >20 mg, delay breastfeeding for 4 hours
Cyclosporine, tacrolimus	+ Monitor blood pressure	+ Monitor blood pressure	+ Low transfer
Nonsteroidal antiinflammatory drugs (cyclooxygenase 2 inhibitors not preferred)	+ Discontinue if the woman is having difficulty conceiving	+ Continue in first and second trimesters; discontinue in third trimester	+ Ibuprofen preferred

2020 ACR Guideline for the Management of Reproductive Health in Rheumatic and Musculoskeletal Diseases

Table 3. Maternal medication use: overview of medication use before and during pregnancy, and during breastfeeding

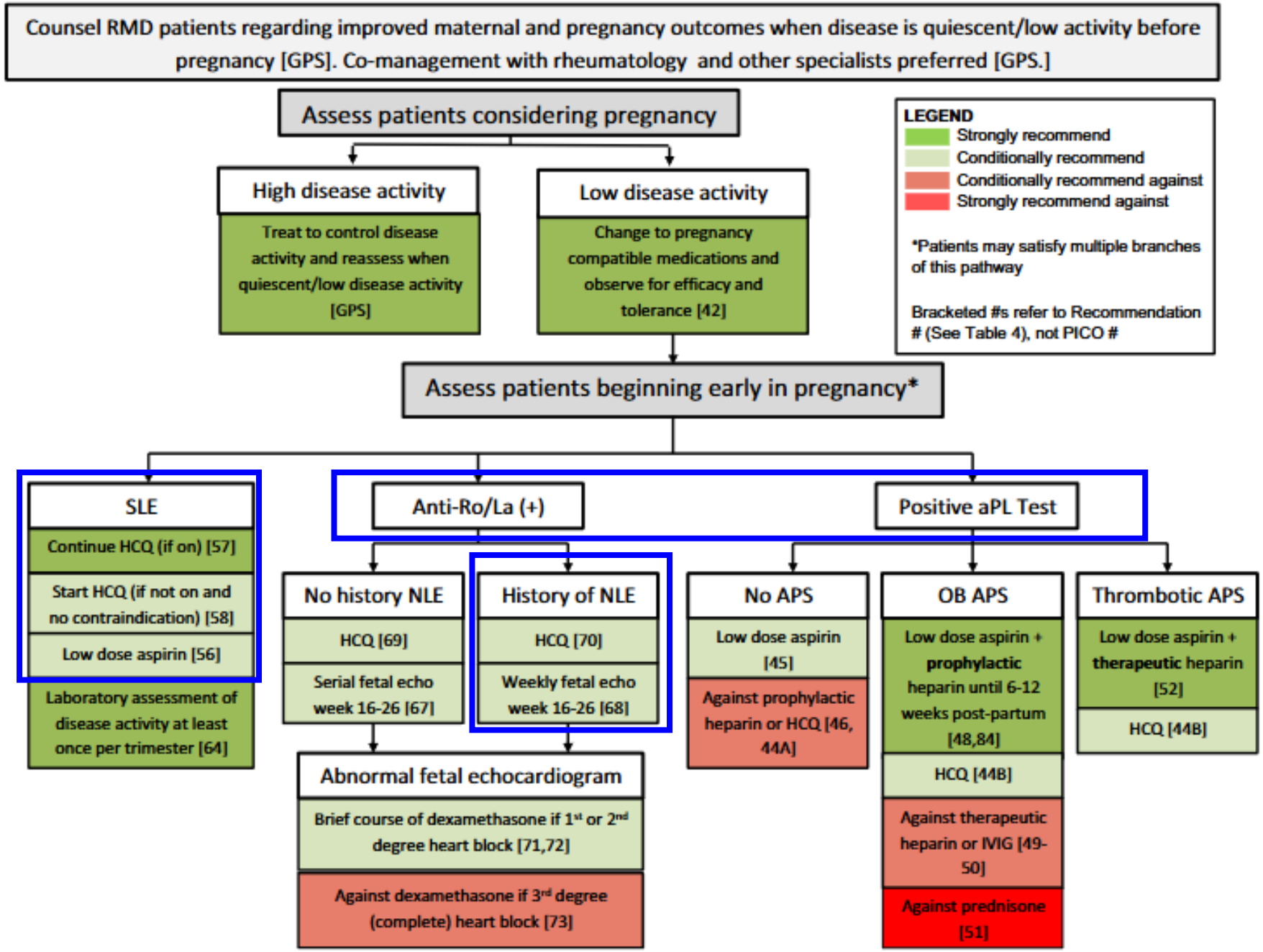
Medication	Pre-conception	During pregnancy	Breastfeeding
Not compatible with pregnancy			
Methotrexate	✕✕ Stop 1–3 months prior to conception	✕✕ Stop and give folic acid 5 mg/day	✕ Limited data suggest low transfer
Leflunomide	✕✕ Cholestyramine washout if detectable levels	✕✕ Stop and give cholestyramine washout	✕✕
Mycophenolate mofetil and mycophenolic acid	✕✕ Stop >6 weeks prior to conception to assess disease stability	✕✕	✕✕
Cyclophosphamide	✕✕ Stop 3 months prior to conception	+ Life-/organ-threatening disease in second and third trimesters	✕✕
Thalidomide	✕✕ Stop 1–3 months prior to conception	✕✕	✕✕
Tofacitinib, apremilast, baricitinib	Unable to determine due to lack of data; small molecular size suggests transfer across the placenta and into breast milk		

2024 EULAR recommendations for use of antirheumatic drugs (1)

Drugs compatible with pregnancy		Drugs may be used if needed to effectively control maternal disease		Drugs to treat severe, refractory maternal disease, or if no alternative medication can be used		Drug to be discontinued prior to conception due to teratogenicity		Drugs that should be avoided due to insufficient data	
Drug	**LoE/GoR**	**Drug**	**LoE/GoR**	**Drug**	**LoE/GoR**	**Drug**	**LoE/GoR**	**Drug**	**LoE/GoR**
hydroxychloroquine (HCQ) chloroquine (CQ)	2a/B HCQ 2c/B CQ	IL12/23i: ustekinumab	2b/B	IV methylprednisolone	4/C	cyclophosphamide++	2a/B	apremilast	5/D
sulfasalazine	2a/B	IL-6i: tocilizumab sarilumab	4/C	IVIG	3b/C	mycophenolate++	2a/B	avacopan	5/D
azathioprine 6-mercaptopurine	2a/B	IL-1i: anakinra canakinumab	4/C	sildenafil	4/C	methotrexate	2a/B	JAKi: tofacitinib, baricitinib, upadacitinib, filgotinib	4/C-5/D
cyclosporine tacrolimus	2a/B CyC 2b/B TAC	IL17i: secukinumab, ixekizumab	4/C	C5i: eculizumab	4/C			bosentan	5/D
colchicine	2b/B	anti-T cell: abatacept	4/C	IL-5i: mepolizumab	4/C			leflunomide (stop 5 half-lives prior to conception or washout) 3.5 months	2b/B
TNFi: adalimumab certolizumab etanercept golimumab infliximab	2a/B	anti-B cell: rituximab belimumab	4/C	IL-23i: guselkumab risankizumab	5/D			voclosporin	5/D
NSAIDs+ prefer ibuprofen (IBU), diclofenac (DIC); (only intermittent use, stop after 28 GW)	2a/B Ibu, Dic 2b/C COX2i			IFNAR1i: anifrolumab	5/D				
prednisone, prednisolone+ (aiming at ≤ 5 mg/d)	2a/B								

2024 EULAR recommendations for use of antirheumatic drugs (2)

Drugs compatible with breastfeeding				Drugs may be considered in breastfeeding if no alternative medication can be used		Drugs to be avoided in breastfeeding due to insufficient data	
Drug	**LoE/GoR**	**Drug**	**LoE/GoR**	**Drug**	**LoE/GoR**	**Drug**	**LoE/GoR**
NSAID: preferential use of ibuprofen (IBU) and celecoxib (CEL)	2a/B IBU 4/C CEL	IL12/23i: ustekinumab	2a/B	bosentan sildenafil	4/C	apremilast	5/D
prednisone, prednisolone IV methylprednisolone	2a/B	IL-6i: tocilizumab, sarilumab	4/C	methotrexate ≤25 mg weekly	4/C	avacopan	5/D
hydroxychloroquine (HCQ) chloroquine (CQ)	2a/B HCQ 4/C CQ	IL-1i: anakinra, canakinumab	2a/B			cyclophosphamide	4/D
sulfasalazine	2a/C	IL17i: secukinumab ixekizumab	5/D			etoricoxib	5/D
azathioprine 6-mercaptopurine	2a/B	IL-23i: guselkumab risankizumab	5/D			iloprost	5/D
cyclosporine tacrolimus	2a/B	IFNAR1i: anifrolumab	5/D			JAKi: tofacitinib (TOF), baricitinib, upadacitinib, filgotinib	4/D (TOF), others 5/D
IVIG	2a/B	IL-5i: mepolizumab	5/D			leflunomide	5/D
colchicine	2a/B	C5i: eculizumab	5/D			mycophenolate	5/D
TNFi: adalimumab certolizumab etanercept golimumab infliximab	2a/B	anti-T cell: abatacept	4/C			voclosporin	5/D
		anti-B cell: rituximab (RTX) belimumab (BEL)	2a/B RTX 4/C BEL				


Counsel RMD patients regarding improved maternal and pregnancy outcomes when disease is quiescent/low activity before pregnancy [GPS]. Co-management with rheumatology and other specialists preferred [GPS.]
Assess patients considering pregnancy
High disease activity
Treat to control disease activity and reassess when quiescent/low disease activity [GPS]
Low disease activity
Change to pregnancy compatible medications and observe for efficacy and tolerance [42]
LEGEND
Strongly recommend
Conditionally recommend
Conditionally recommend against
Strongly recommend against
*Patients may satisfy multiple branches of this pathway
Bracketed #s refer to Recommendation # (See Table 4), not PICO #
Assess patients beginning early in pregnancy*
SLE
Continue HCQ (if on) [57]
Start HCQ (if not on and no contraindication) [58]
Low dose aspirin [56]
Laboratory assessment of disease activity at least once per trimester [64]
Anti-Ro/La (+)
Positive aPL Test
No history NLE
HCQ [69]
Serial fetal echo week 16-26 [67]
History of NLE
HCQ [70]
Weekly fetal echo week 16-26 [68]
Abnormal fetal echocardiogram
Brief course of dexamethasone if 1st or 2nd degree heart block [71,72]
Against dexamethasone if 3rd degree (complete) heart block [73]
No APS
Low dose aspirin [45]
Against prophylactic heparin or HCQ [46, 44A]
OB APS
Low dose aspirin + prophylactic heparin until 6-12 weeks post-partum [48,84]
HCQ [44B]
Against therapeutic heparin or IVIG [49-50]
Against prednisone [51]
Thrombotic APS
Low dose aspirin + therapeutic heparin [52]
HCQ [44B]

Case 6

- 28F with SLE
- Active LN and thrombotic APS
- Meds: HCQ, MMF, prednisolone, warfarin.
- LAB: LA persistently positive.

Best contraceptive method?

A. Copper IUD
B. Progestin IUD
C. Progestin implant
D. DMPA+ condom
E. Progestin-only pill

Safety and efficacy of various contraceptive methods in RMD

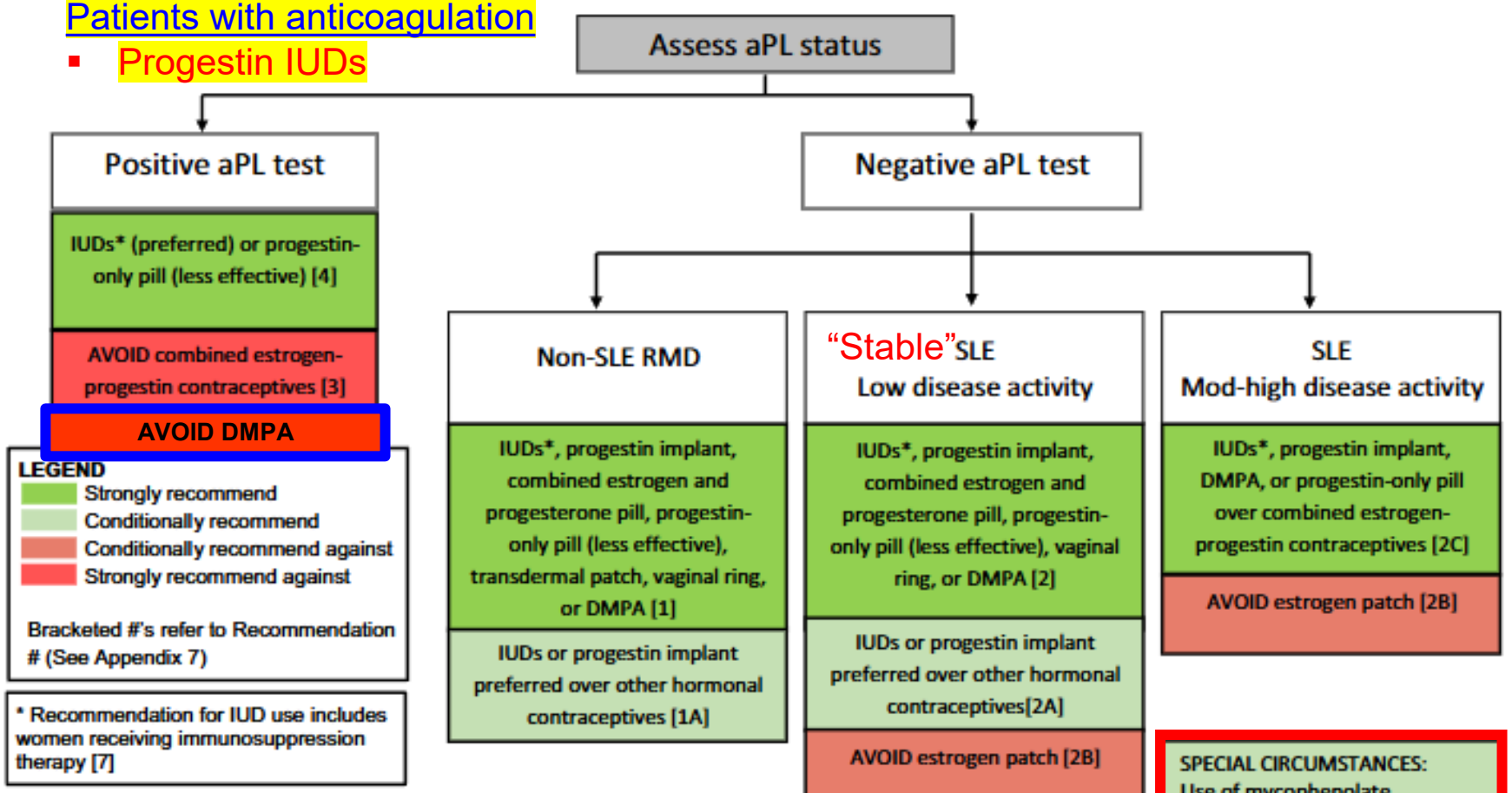
Method	Safety in women with RMD	1-year failure rate, %†
Highly effective (LARC)		
Copper IUD	Safe in all women with RMD; may increase menstrual bleeding	<1
Progestin IUD	Safe in all women with RMD; may decrease menstrual bleeding	<1
Progestin implant	Limited data, but likely safe in all women with RMD	<1
Effective		
Progestin-only pill (daily)	Safe in all women with RMD; higher rate of breakthrough bleeding than with combined contraceptives; must take same time every day for efficacy	5–8
DMPA (IM injection every 12 weeks)	Safe in most women with RMD; exceptions: positive aPL, at high risk for OP	3
Combined estrogen and progesterone pill (daily)	Safe in most women with RMD; exceptions: positive aPL, very active SLE	5–8
Transdermal patch (weekly)	Safe in most women with RMD; exceptions: positive aPL, SLE; serum estrogen levels higher than with pill or vaginal ring	5–8
Vaginal ring (monthly)	Safe in most women with RMD; exceptions: positive aPL, very active SLE	5–8
Less effective		
Diaphragm	Safe in all women with RMD	12
Condom	Safe in all women with RMD; only form to prevent STD	18
Fertility awareness–based methods‡	Safe in all women with RMD; limited efficacy, especially if menses are irregular	24
Spermicide	Safe in all women with RMD; use with condoms or diaphragm to improve efficacy	28

* RMD = rheumatic and musculoskeletal disease; LARC = long-acting reversible contraception; IUD = intrauterine device; DMPA = depot medroxyprogesterone acetate; IM = intramuscular; aPL = antiphospholipid antibody; OP = osteoporosis; SLE = systemic lupus erythematosus; STD = sexually transmitted disease.
† Percent of women who will become pregnant within the first year of typical use.
‡ Methods based on the timing of the menstrual cycle.

Discuss contraception and pregnancy planning at initial or early visit with women of reproductive age and counsel regarding efficacy and safety [GPS]. Recommend barrier methods if more effective methods are contraindicated [GPS]. Recommend emergency (post-coital) contraception when necessary [6].

Patients with anticoagulation

- Progestin IUDs



aPL test should be performed

- SLE or SLE-like disease
- Patients with suggestive histories or physical findings

"Positive aPL"

Persistent and mod-high titer

- 2 positive test results at least 12 weeks apart *plus*
- Moderate-high–titer aCL/anti-β2GPI (≥40 units)
- Positive LAC

DMPA = Depot Medroxyprogesterone Acetate
LNG = Levonorgestrel

Case 7

- 25F with SLE → active lupus nephritis
- BP 150/90 mmHg
- Cr 2.3 mg/dL (eGFR 25 cc/min), albumin 2.4 mg/dL
- Proteinuria 3.2 g/day, RBC casts.
- Biopsy: Class IV with crescents and fibrinoid necrosis, no thrombotic microangiopathy
- Already given IV methylprednisolone.

Next best treatment?

A. MMF
B. IV cyclophosphamide (Euro-Lupus)
C. IV cyclophosphamide (NIH)
D. MMF + tacrolimus
E. MMF + Rituximab

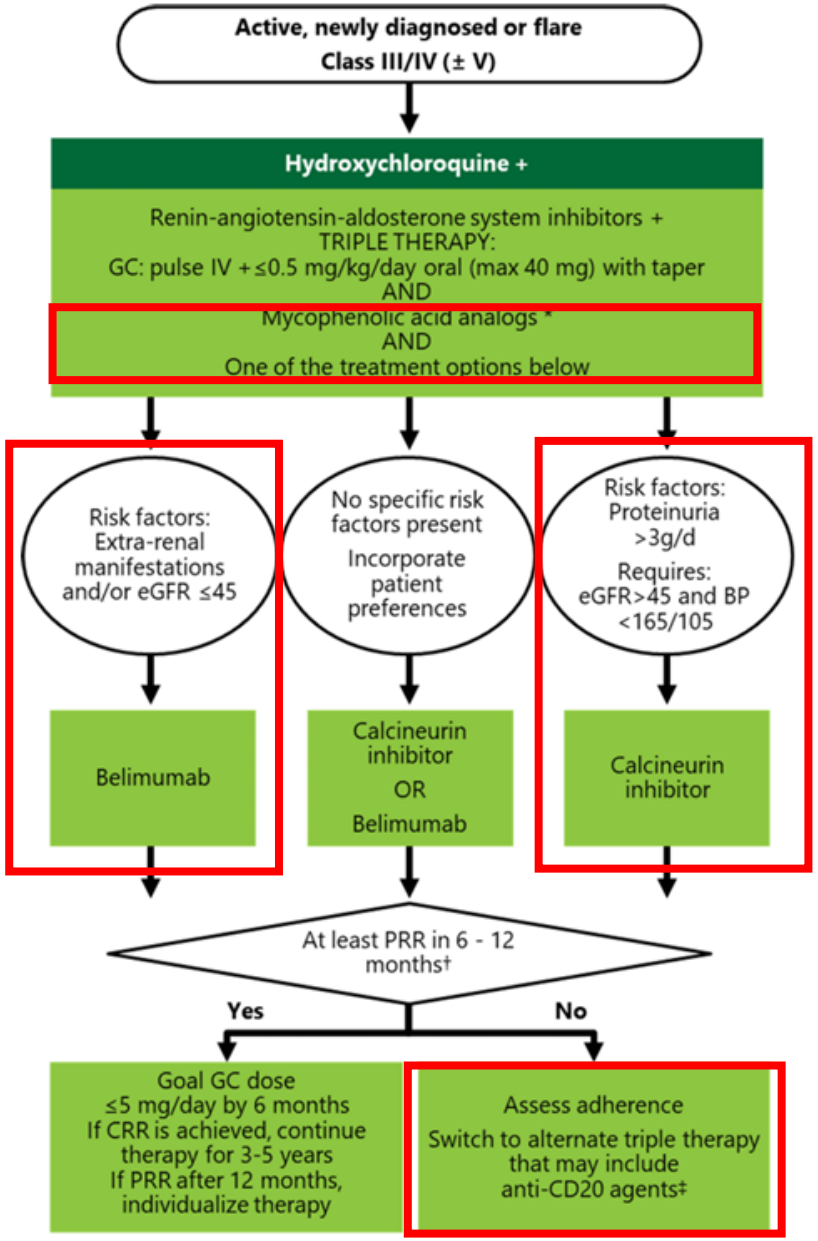
Current treatment of lupus nephritis

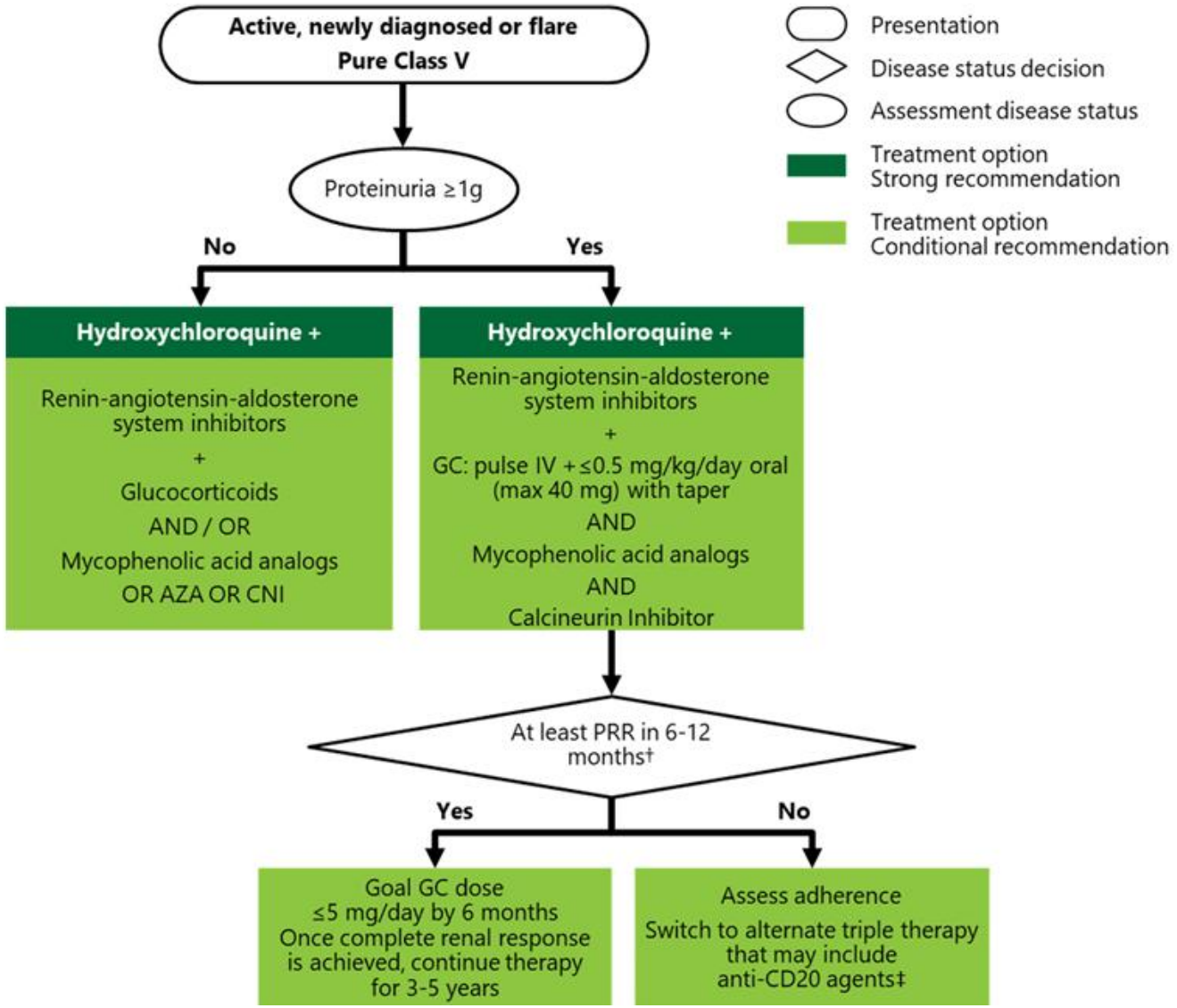
- Choice of treatment is directly based on renal pathology and severity.

	Double Immunosuppressive Regimen				Triple Immunosuppressive Regimen		
	Cyclophosphamide (CYC)			Mycophenolic Acid Analogs (MPAA)	Calcineurin Inhibitors + MPAA		Belimumab + MPAA/CYC
	Modified NIH Regimen	ELNT Regimen	Oral Regimen		Tacrolimus + MPAA	Voclosporin + MPAA	
Dosage	i.v. 0.5-1 g/m² monthly x 6 or i.v. 7.5-15 mg/kg monthly x 6	i.v. 500 mg q2wk x 6	p.o. 1.0-1.5 mg/kg/day	MMF p.o. 1.0 - 1.5 g b.i.d. or MPA p.o. 0.72 - 1.08 g b.i.d.	Tacrolimus (through level approx. 4-6 ng/ml) + reduced-dose MPAA (1-2g/d)	Voclosporin 23.7 mg b.i.d. + MPAA (2-3 g/d)	Belimumab (i.v. 10 mg/kg q2wk x 3 doses, then q4wk) + MPAA (2-3 g/d) or i.v. CYC (500 mg q2wk x 6 doses)
Length	6 months	3 months	3-6 months	At least 6 months	At least 6 months Up to 24 months	Up to 36 months	Up to 2.5 years
	Guideline Recommendations						
KDIGO	Active Proliferative LN Difficulty adhering to oral regimen	Active Proliferative LN Difficulty adhering to oral regimen White patients	Active Proliferative LN	Active proliferative LN High risk of infertility, such as patients who have a moderate-to-high prior cyclophosphamide exposure	Relatively preserved kidney function (eGFR ≥ 45 mL/min) Proteinuria > 3 g/day Cannot tolerate standard dose MPAA Unfit for or will not use CYC-based regimens	Relatively preserved kidney function (eGFR ≥ 45 mL/min) Proteinuria > 3 g/day Cannot tolerate standard dose MPAA Unfit for or will not use CYC-based regimens	Patients with repeated kidney flares or at high risk for progression to kidney failure due to severe chronic kidney disease.

Lupus Sci Med 2024. Dec 20;11(2):e001331

2025 ACR Guideline for LN





2025 EULAR Recommendation for LN

Diagnosis / Targets

- **Kidney biopsy**
  Indispensable. Repeat if clinical uncertainty
- **Target – Prevention of**
  Chronic kidney disease
  Flares
- **Milestones**
  Kidney function.
  Preservation or improvement by 3 months
  Proteinuria.
  Reduction by 25% at 3 months
  Reduction by 50% at 6 months
  uPCR <700 mg/g by 12 months

Immune Treatment

"Quadruple Regimen"

- **Early combination tx**
  Hydroxychloroquine and Glucocorticoids with Immunosuppressive and CNI or biologic
- **Glucocorticoids**
  Start with pulses
  Continue with 0.3-0.7 mg/kg/d prednisone
  Taper to ≤5mg/day by 4-6 mo and withdraw when possible
- **Immunosuppressives**
  MMF, low-dose CYC
- **CNI**
  Voclosporin o TAC (CsA)
- **Biologics**
  Belimumab, Obinutuzumab

Non-immune Treatment

- **Nephroprotection**
  Low salt (less than 5g/day)
  Control BP (RAASi 1st choice)
  SGLT2 inhibitors (in stable ds. if residual proteinuria after 12m)
- **Dyslipidemia**
- **Vaccinations**
  Influenza, COVID-19, HZV, S. pneumoniae
- **Bone Health**

Severe or Refractory

- **Severe**
  Consider high-dose i.v. CYC + Pulse i.v. MP
- **Refractory**
  Combination i.v-CYC and B-cell depletion

Addition of a CNI if heavy proteinuria
Experimental therapies in the context of a protocol

- **Thrombotic Microangiopathy**
  Plasma exchange
  Complement inhibitors
  Anti-vWf (caplacizumab)

2025 APLAR Guideline for LN

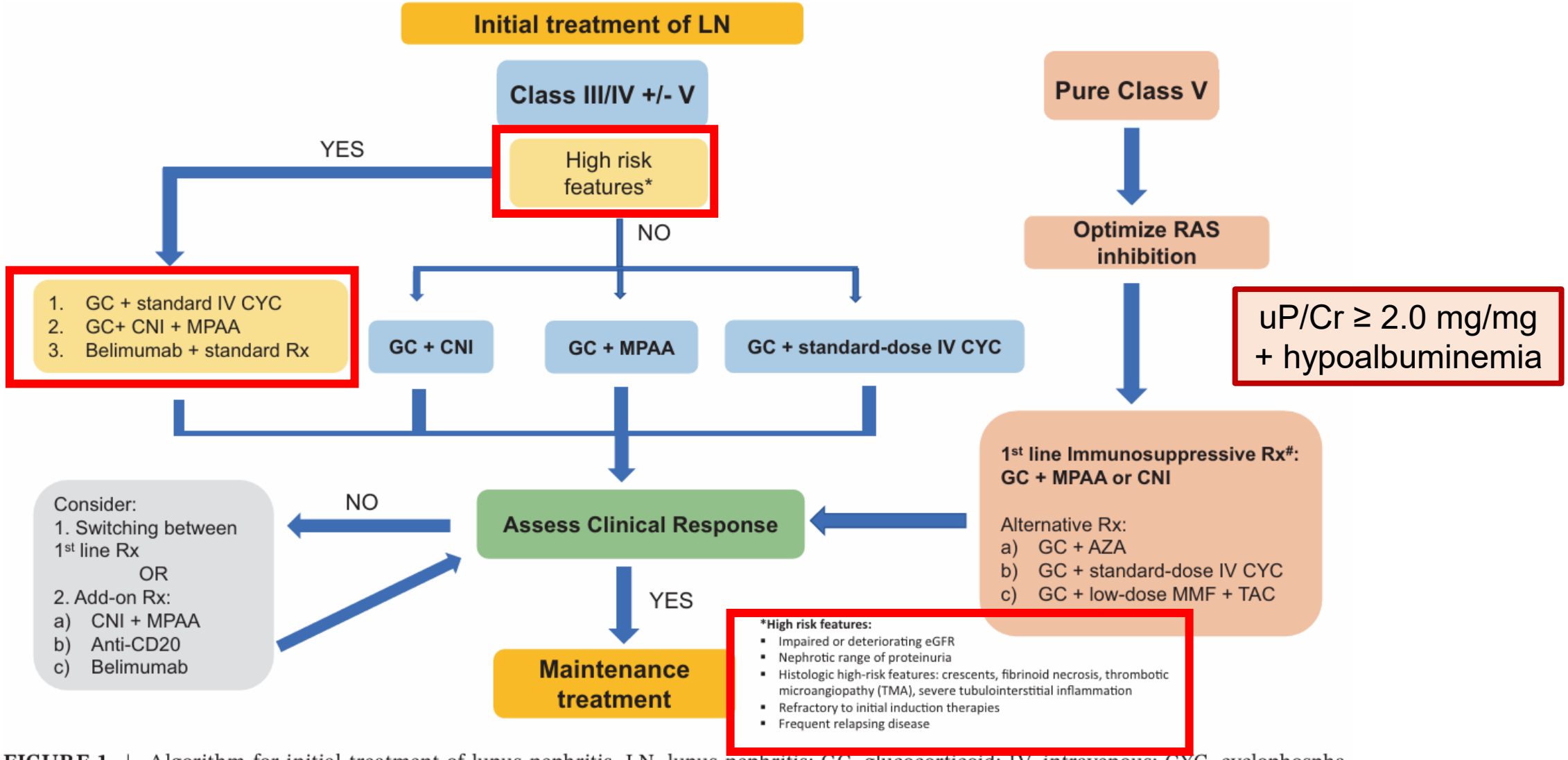


FIGURE 1 | Algorithm for initial treatment of lupus nephritis. LN, lupus nephritis; GC, glucocorticoid; IV, intravenous; CYC, cyclophosphamide; CNI, calcineurin inhibitor; MPAA, mycophenolic acid analogue; RAS, renin angiotensin system; Rx, treatment; AZA, azathioprine; TAC, tacrolimus.

Case 8

- 38M with systemic sclerosis with reflux esophagitis
- Frequent Raynaud's + new 2 digital ulcers (2 wks)
- PE: digital pitted scars

Most appropriated management

A. Long-acting nifedipine
B. Sildenafil
C. Bosentan
D. Iloprost
E. Low dose aspirin

EULAR recommendations for the treatment of systemic sclerosis: 2023 Updated

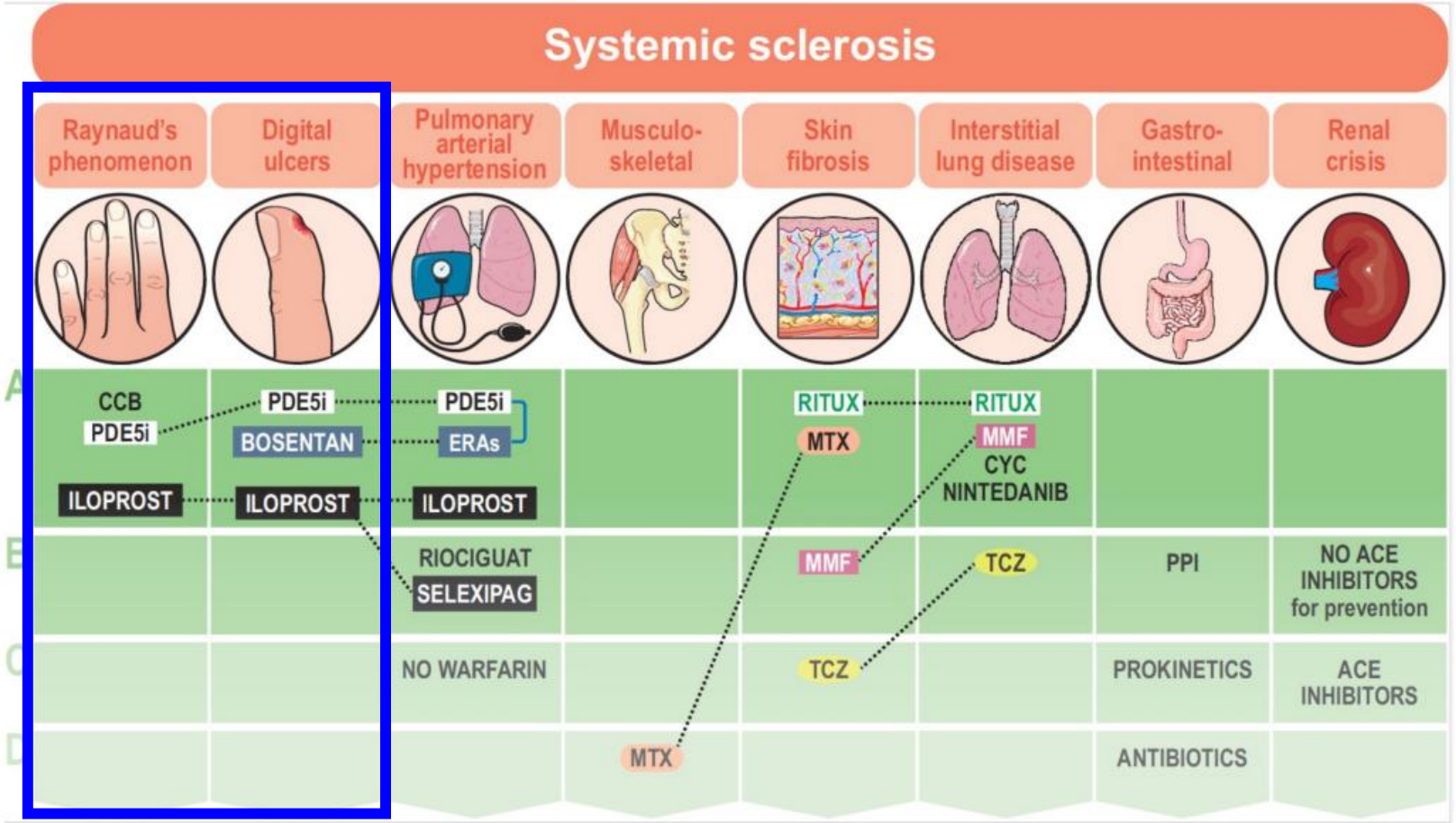


Figure 1 Schematic representation of the eight clinical domains covered by the 2023 recommendations. Note that severe prognosis is not represented. The different shades of green boxes labelled A–D represent the Strength of the Recommendation (SoR) as shown in the relative column of table 1. Dotted lines connect same drug or drug class across distinct clinical domains. CCB, calcium channel blocker; CYC, cyclophosphamide; ERAs, endothelin receptor antagonists; MMF, mycophenolate mofetil; MTX, methotrexate; PDE5i, phosphodiesterase five inhibitors; PPI, proton pump inhibitors; RITUX, rituximab; TCZ, tocilizumab.

IS (LoE)	RP	Digital ulcer
CCB (Nifedipine)	1A	
PDE5i (sildenafil/ tadalafil)	1A	1A (healing/ prevention)
ERAs (Bosentan)		1A (prevention)
iv.Prostacyclin (Iloprost)	1A	1A (healing)

Del Galdo F, et al. Ann Rheum Dis 2024;0:1–12.

Global management of systemic sclerosis – treatment considerations

BSR 2024

Raynaud's phenomenon

Calcium channel blockers and other vasodilators may be considered in management of SSc-RP 1B

Expert opinion suggests that PDE5i are effective as 2nd line agent for refractory SSc-RP 1B

For rescue therapy in severe SSc-RP IV prostanoids may be considered 1C

Digital ulcers

Severe digital vasculopathy with new tissue necrosis or critical ischaemia requires urgent clinical assessment 1C

Sildenafil (or tadalafil) as 1st line agent in DU healing and secondary prevention and bosentan as second line treatment 1C

Expert opinion supports use of IV prostanoids in promoting DU healing 1C

Case 9

- 45F with SSc-ILD on MMF 2 g/day (6 mo)
- Progressive cough & DOE; afebrile; skin thickness much improved
- FVC ↓ 68% → 62%
- HRCT: increase reticulation, traction bronchiectasis and honey combing pattern

Best add-on therapy?

A. Rituximab
B. Tocilizumab
C. Nintedanib
D. Cyclophosphamide
E. Sildenafil

Thai recommendation of SSc-ILD 2564

1. การพิจารณาเริ่มรักษาด้วยยากดภูมิคุ้มกัน (immunosuppressive drugs)

ปัจจัยพิจารณาเริ่มการรักษาด้วยยา immunosuppressive drugs มีดังต่อไปนี้

1.1 ประเมินความรุนแรงของโรค โดยพิจารณาจากค่า FVC และปริมาณความผิดปกติจาก HRCT โดยใช้เกณฑ์ข้อใดข้อหนึ่งต่อไปนี้ (3, 5, 13)

- FVC < 70% predicted
- ปริมาณความผิดปกติจาก HRCT > 20%

1.2 กรณีไม่เข้าเกณฑ์ข้อ 1.1 หรือไม่สามารถตรวจ pulmonary function tests ได้ ให้พิจารณาเริ่มการรักษาจากลักษณะต่อไปนี้

- ลักษณะทางคลินิกแย่ลงโดยไม่มีสาเหตุมาจากโรคหรือภาวะอื่น
- ผู้ป่วยที่มีปัจจัยเสี่ยงในการเกิดการลุกลามของโรค
- HRCT มีลักษณะที่เข้าได้กับ organizing pneumonia ร่วมด้วย (ตารางที่ 3) โดยไม่พบสาเหตุอื่นที่ทำให้มี HRCT เป็นแบบนั้น เช่น infection เป็นต้น
- มีข้อบ่งชี้ในการรักษาตามความผิดปกติในระบบอวัยวะอื่น

Risk factors for disease progression in SSC-ILD

	SSc[#]
Demographics	• Older age • Male sex • African American ethnicity
Circulating markers	• Elevated ESR, CRP • ATA-I Anti-Scl-70
Pulmonary function/markers	• Baseline PFTs (FVC, D_{LCO})
Imaging/histology	• Higher extent of ILD on HRCT
Extrapulmonary involvement	• Recent onset of SSc with rapid skin progression, more extensive skin fibrosis (mRSS)

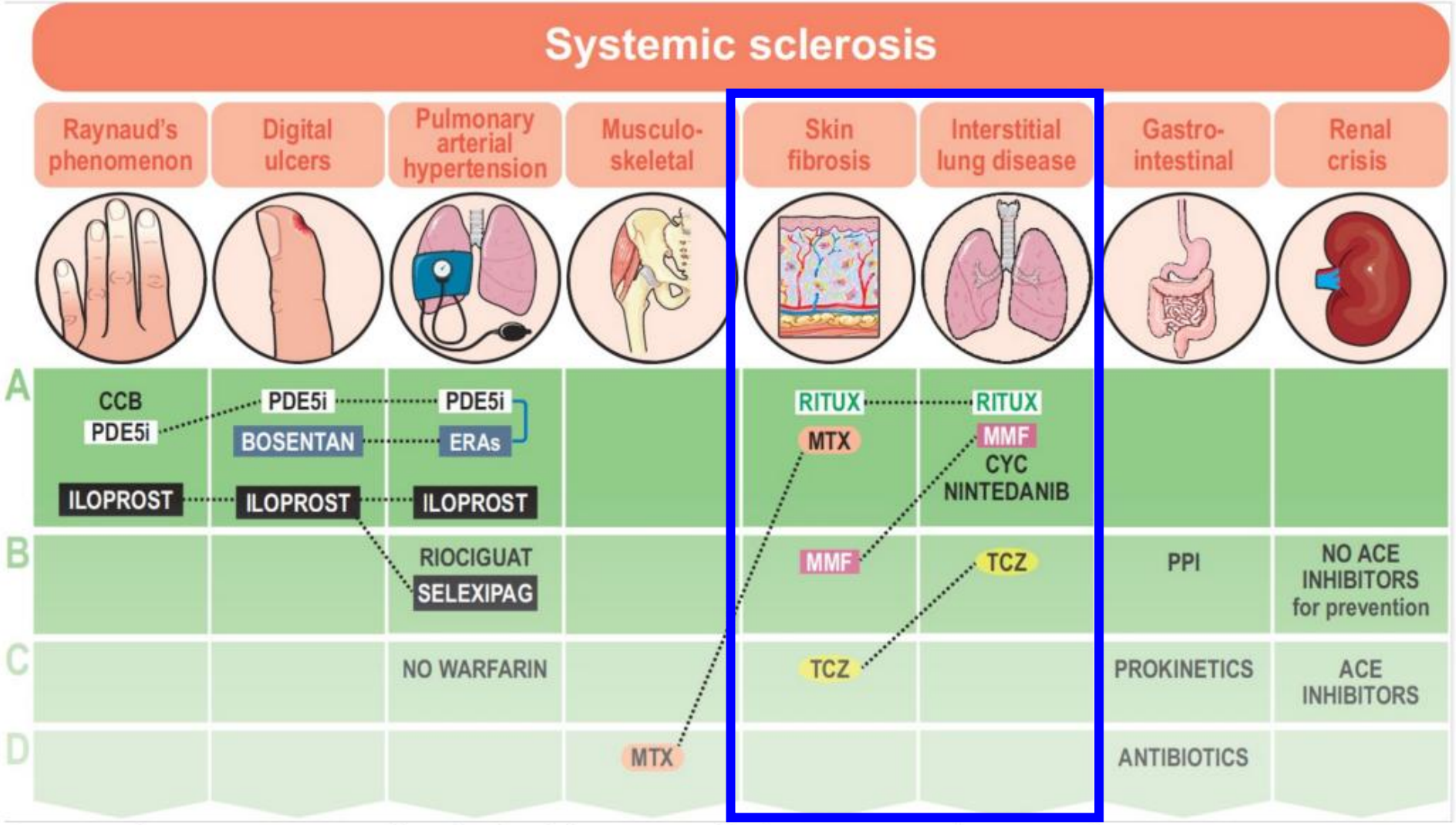


Figure 1 Schematic representation of the eight clinical domains covered by the 2023 recommendations. Note that severe prognosis is not represented. The different shades of green boxes labelled A–D represent the Strength of the Recommendation (SoR) as shown in the relative column of table 1. Dotted lines connect same drug or drug class across distinct clinical domains. CCB, calcium channel blocker; CYC, cyclophosphamide; ERAs, endothelin receptor antagonists; MMF, mycophenolate mofetil; MTX, methotrexate; PDE5i, phosphodiesterase five inhibitors; PPI, proton pump inhibitors; RITUX, rituximab; TCZ, tocilizumab.

Del Galdo F, et al. Ann Rheum Dis 2024;0:1–12.

IS (LoE)	Skin	ILD
RTX	1A	1A
MMF	1B	1A
CYC	1B	1A
*TCZ	1B	1B
MTX	1B	
**Nintedanib		1A

***TCZ** = early inflammatory (mild or subclinical) ILD

****Nintedanib** = Progressive Pulmonary Fibrosis (PF-ILD)

2025: ERS/EULAR guidelines for SSc-ILD

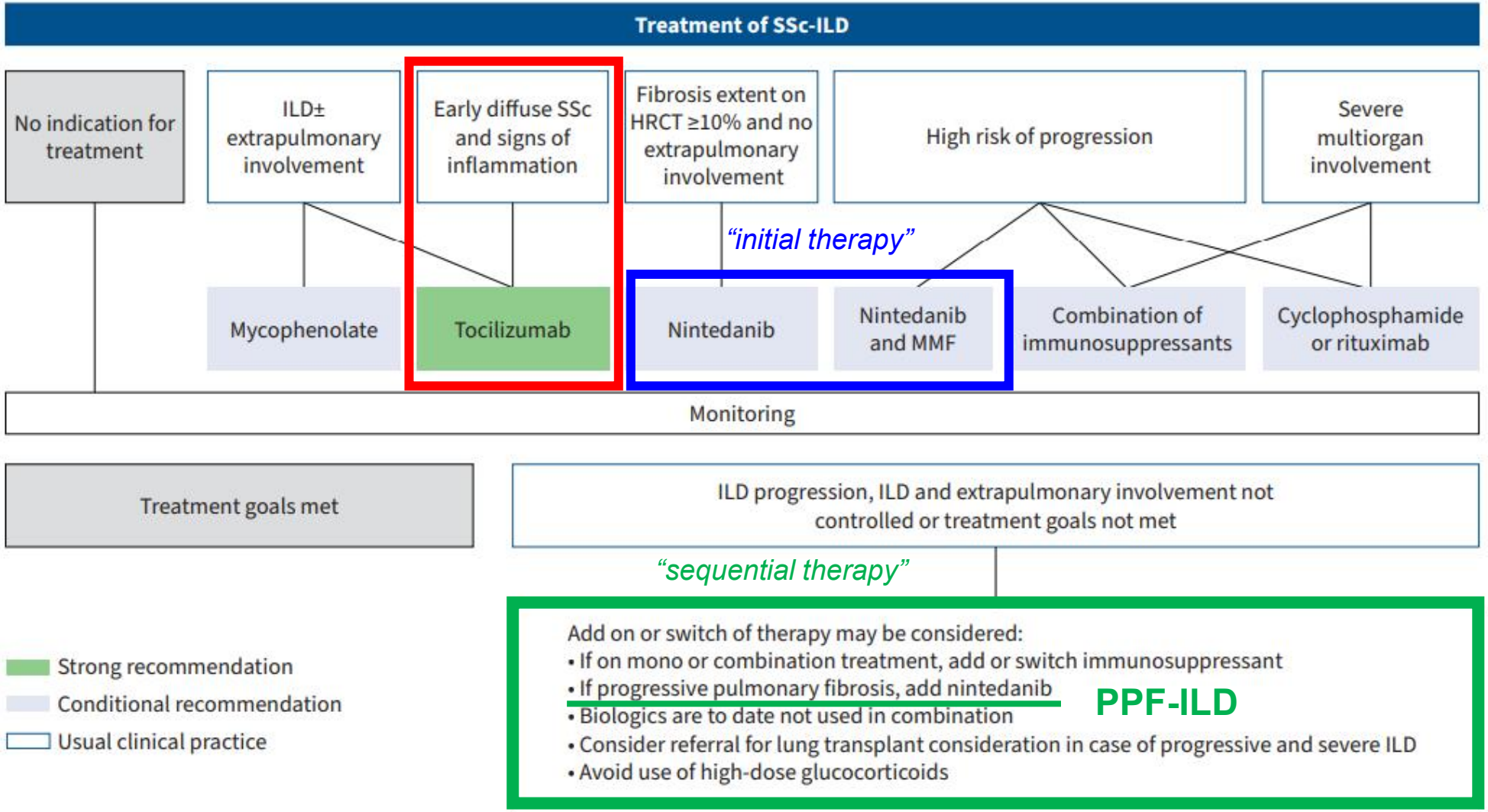


FIGURE 4a Treatment algorithms for patients with systemic sclerosis (SSc)-associated interstitial lung disease (ILD). HRCT: high resolution computed tomography; MMF: mycophenolate mofetil.

แนวเวชปฏิบัติการวินิจฉัยและรักษาภาวะปอดเป็นพังผืดชนิดลุกลามในผู้ใหญ่ พ.ศ. 2567

เกณฑ์	เกณฑ์บังคับ	
การวินิจฉัย	1. ต้องได้รับการรักษาตามมาตรฐานของโรคหรือภาวะที่เป็นสาเหตุของ non-IPF fibrotic ILD แล้ว 2. ไม่มีโรคหรือภาวะอื่นที่เป็นสาเหตุของการแย่ลง เช่น ปอดติดเชื้อ น้ำท่วมปอด ลมรั่วในช่องเยื่อหุ้มปอด ลิ่มเลือดอุดตันในหลอดเลือดแดงปอด และความดันหลอดเลือดแดงปอดสูง เป็นต้น	
	เกณฑ์ร่วม (ใช้เกณฑ์อย่างน้อย 2 ใน 3 ข้อ)	**เกณฑ์เดี่ยว (ใช้เกณฑ์ทางสรีรวิทยาข้อเดียว)**
1. ลักษณะทางคลินิก	อาการและอาการแสดงแย่ลง*	-
2. ลักษณะทางสรีรวิทยา	ข้อใดข้อหนึ่งต่อไปนี้ • Absolute FVC decline ≥ 5% • Absolute DLCO decline ≥ 10%	Relative FVC decline ≥ 10%
3. ลักษณะทางรังสีวิทยา	ปริมาณหรือลักษณะที่บ่งถึงพยาธิสภาพพังผืด มากขึ้นหรือแย่ลงจากภาพเอกซเรย์คอมพิวเตอร์ปอดชนิดความละเอียดสูง**	-
ระยะเวลาการประเมิน	12 เดือน	24 เดือน

* **อาการและอาการแสดงแย่ลง** หมายถึง เหนื่อยมากขึ้น แนะนำให้ประเมินจากแบบประเมินอาการเหนื่อย เช่น modified Medical Research Council (mMRC) dyspnea scale เป็นต้น ไอมากขึ้น และระดับออกซิเจนปลายนิ้ว (pulse oximetry) ต่ำลง โดยประเมินทั้งขณะพักและหลังออกกำลังหรือมีกิจกรรม (exertional desaturation) เป็นต้น

** **ปริมาณหรือลักษณะที่บ่งถึงพยาธิสภาพพังผืดมากขึ้นหรือแย่ลงจากภาพเอกซเรย์คอมพิวเตอร์ปอดชนิดความละเอียดสูง** ได้แก่ traction bronchiectasis หรือ bronchiolectasis ที่มีปริมาณมากขึ้น, ground-glass opacity ร่วมกับ traction bronchiectasis ที่เกิดขึ้นใหม่, fine reticulation ที่เกิดขึ้นใหม่, reticular abnormalities ที่มีการหนาตัวหรือมีปริมาณมากขึ้น, honeycombing ที่มีปริมาณมากขึ้นหรือเกิดขึ้นใหม่ และปริมาตรปอดที่ลดลง เป็นต้น

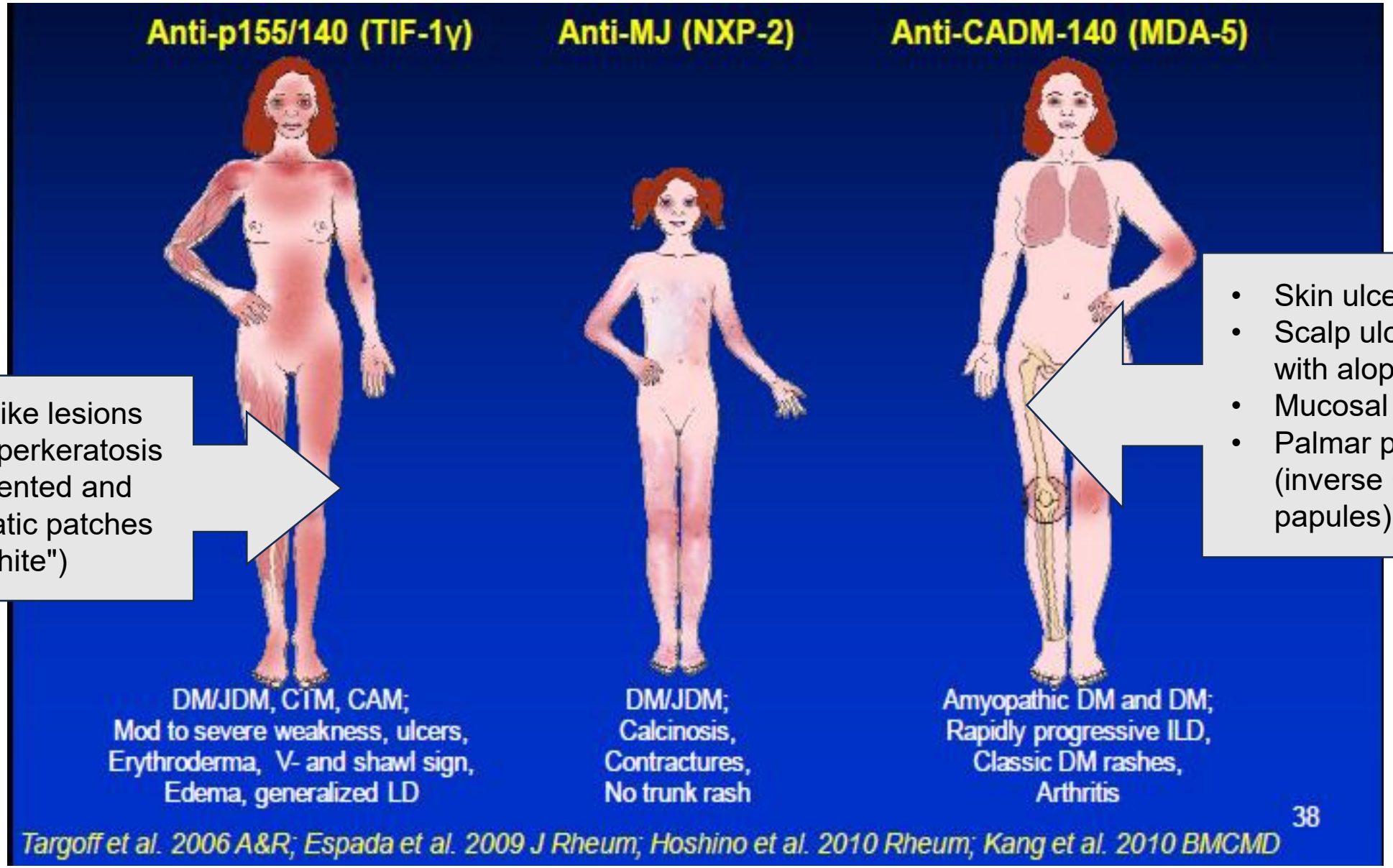
Case 10.

- A 40-year-old woman with fever, dyspnea (4 weeks), SpO_2 90%.
- Exam: Gottron's ulceration, no weakness
- CXR: bilateral ground-glass + consolidation.
- Sputum negative.
- CK 400, Anti-MDA5 positive.

What is the best treatment in addition to high-dose steroids?

A. Rituximab
B. Mycophenolate
C. Cyclophosphamide
D. Cyclophosphamide + tacrolimus
E. IVIG

Autoantibody Phenotypes in IIM



- Psoriasis-like lesions
- Palmar hyperkeratosis
- Hypopigmented and telangiectatic patches ("red on white")

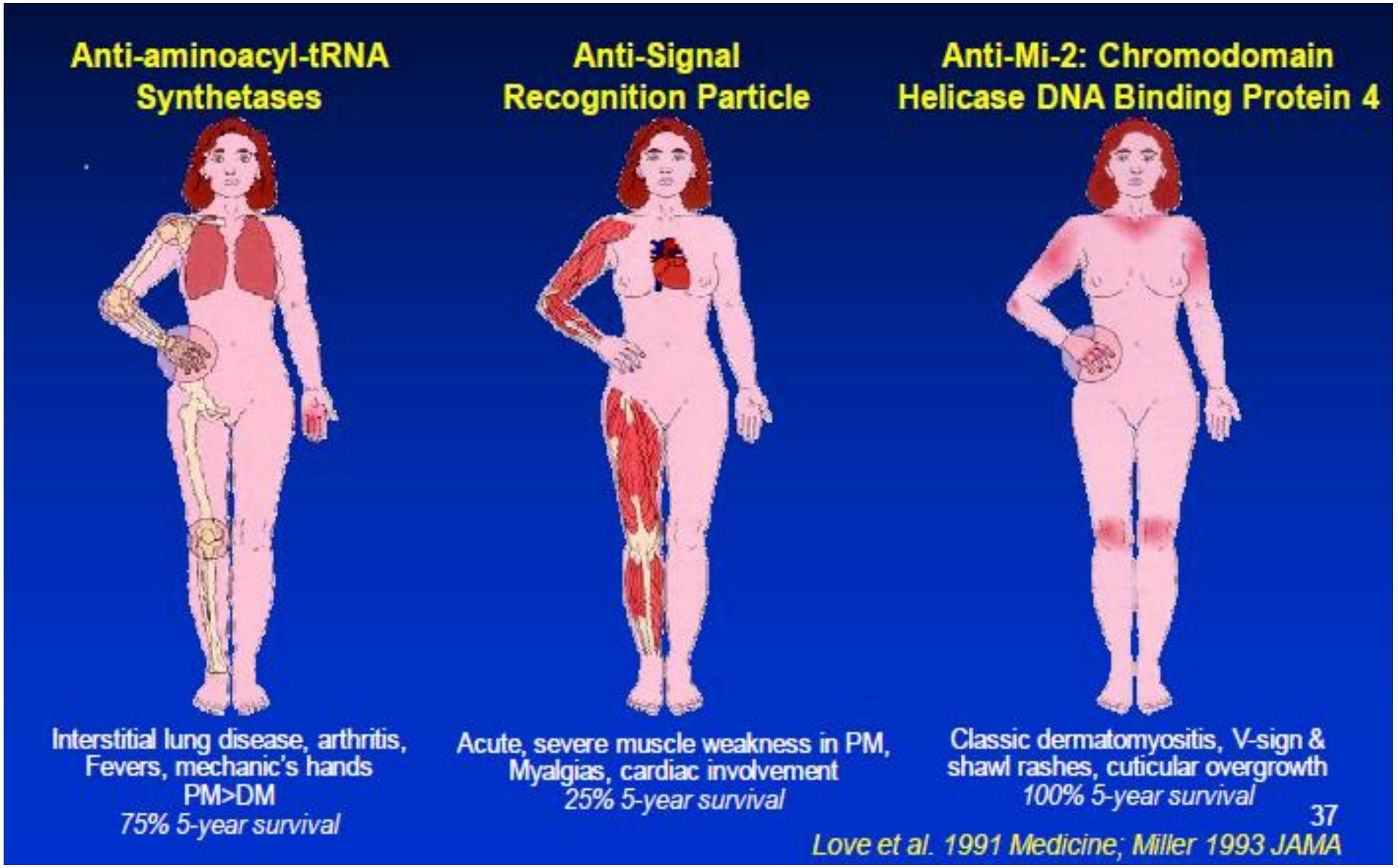
- Skin ulceration
- Scalp ulceration with alopecia
- Mucosal ulcer
- Palmar papules (inverse Gottron' papules)

Skin Manifestations of Anti-MDA-5 CADM

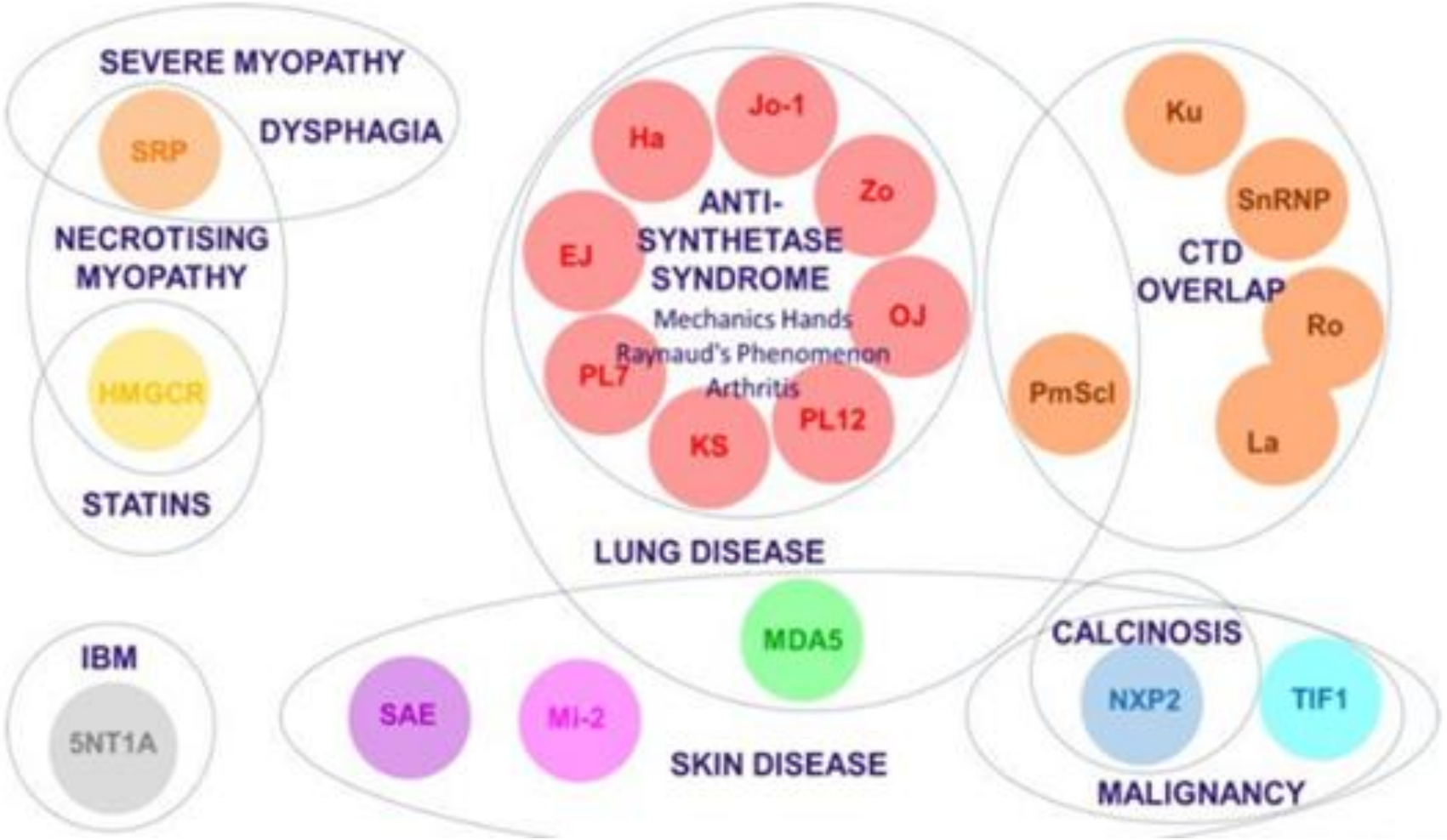
Palmar papules
(inverse Gottron' sign)

Cutaneous ulcerations

Autoantibody Phenotypes in IIM



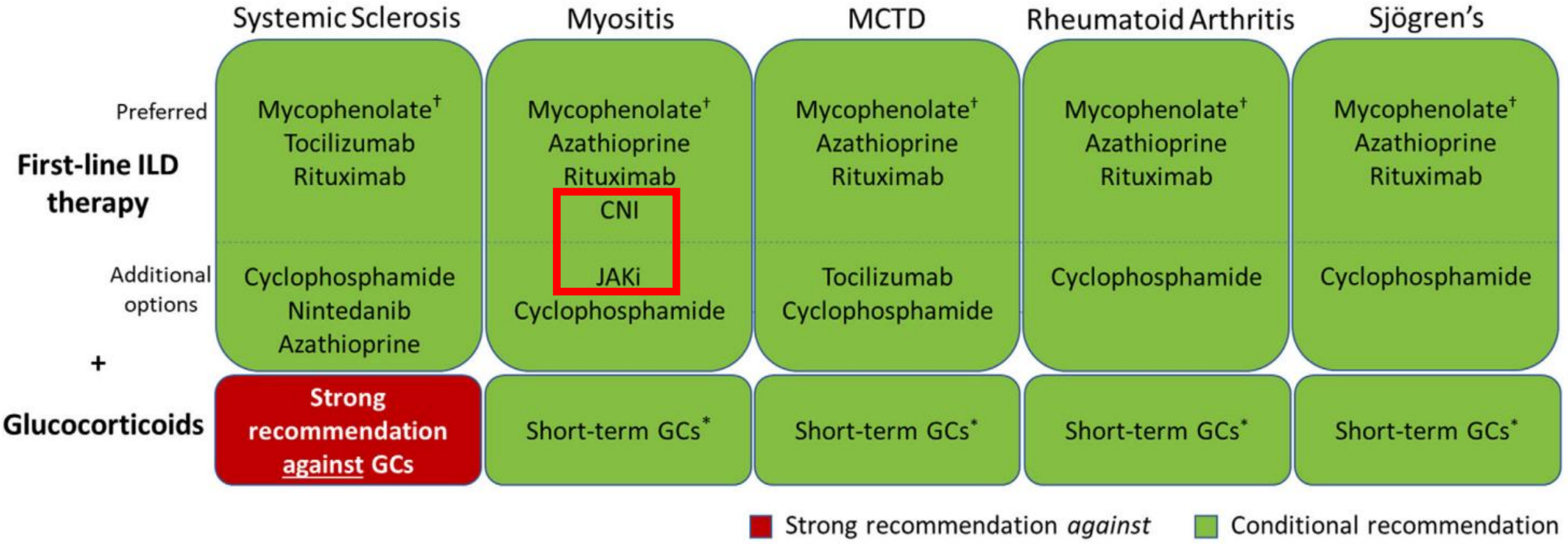
Myositis antibodies & Clinical associations



J Intern Med. 2016 Jul;280(1):8-23

2023 ACR/CHEST Guideline

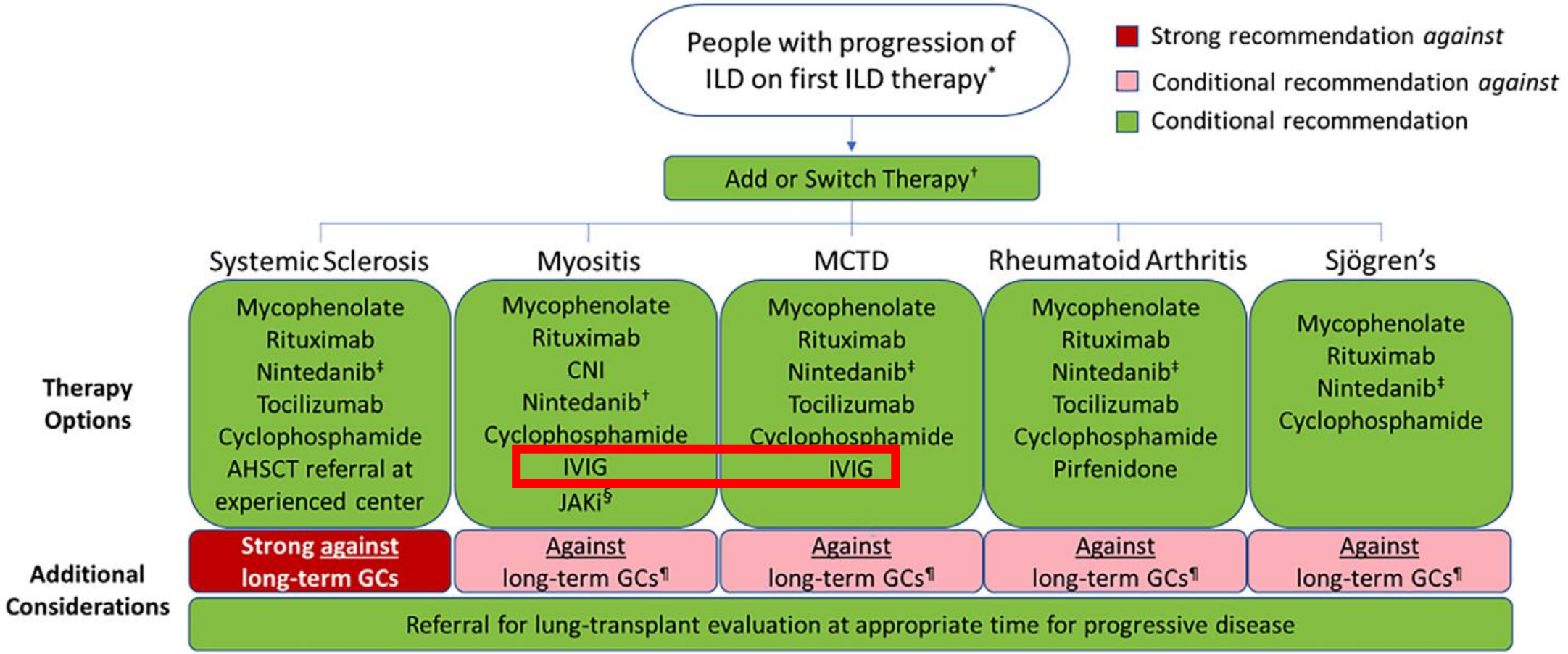
Initial treatment options for the treatment of SARD-ILD



Calcineurin inhibitors (CNI) = Cyclosporin A, tacrolimus (most evidences from IIM-ASS)
Janus kinase inhibitor (JAKi) = Tofacitinib (indirect evidence from anti-MDA-5 not RP-ILD)

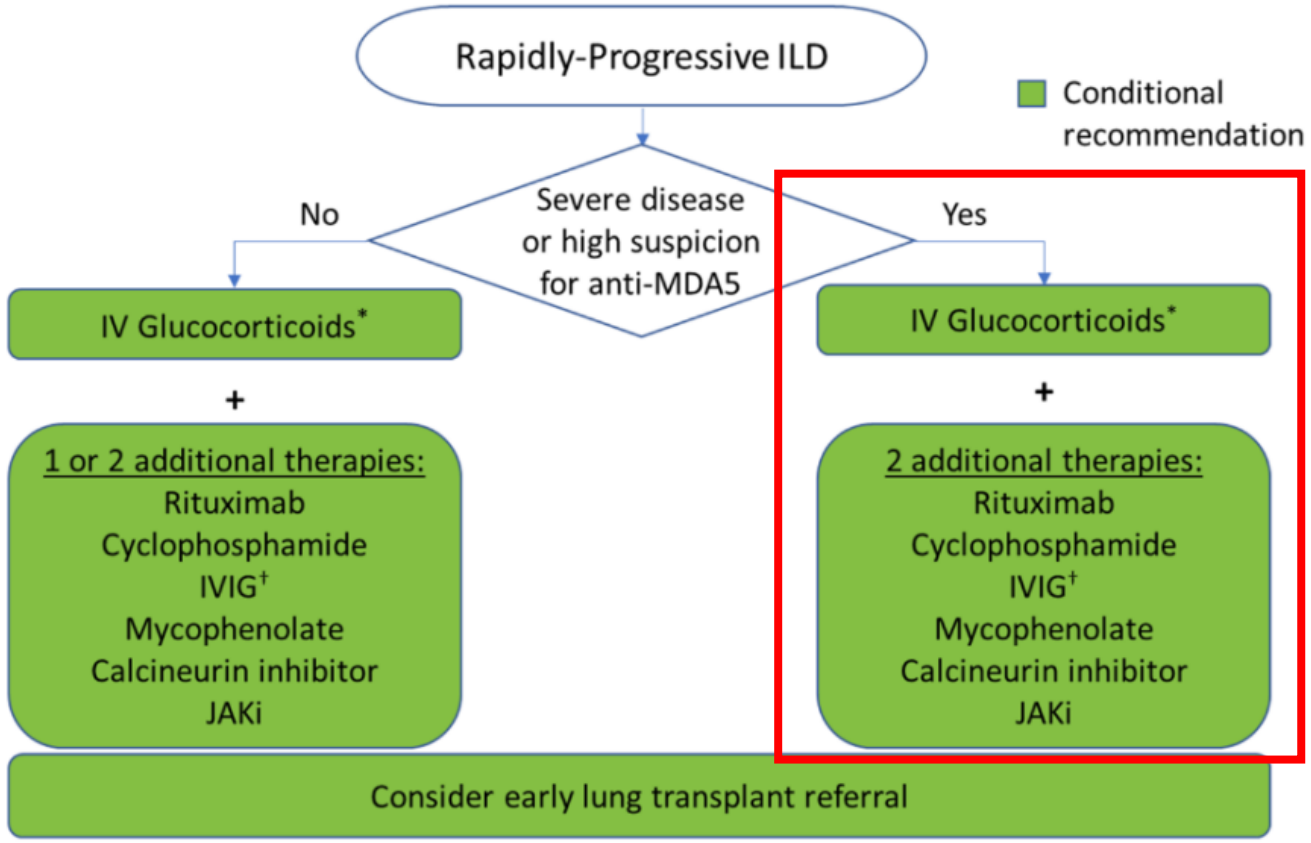
2023 ACR/CHEST Guideline

Management of SARD-ILD with progression of ILD despite first ILD therapy.



1. IVIG is effective for myositis and dysphagia IIM (myositis predominant–MCTD).
2. IVIG may be useful when rapid onset of action is desired, eg, presence of severe respiratory muscle weakness.
3. IVIG may be used in the acute setting if infection is a concern, BUT limited ILD efficacy data.

Guideline for the Treatment of RP-ILD



* In rare patients with systemic sclerosis with rapidly progressive ILD, there was no consensus on whether or not to use glucocorticoids – if used, patients should be monitored closely for evidence of renal crisis.

† Rituximab and cyclophosphamide recommended over IVIG, but IVIG may be preferred if there is high concern for infection.

ILD = interstitial lung disease; IV = intravenous; IVIG = intravenous immune globulin; JAKi = janus kinase inhibitor

Case 11.

- A 60-year-old man presents with 1 week of painful proximal weakness.
- Hx: gout, dyslipidemia.
- Meds: colchicine, statin.
- Recently took clarithromycin due to CAP.
- Exam: proximal weakness, ↓DTR
- CK 1500, ANA negative.

What is the cause?

A. Inclusion body myositis

B. Statin-induced myopathy

C. Colchicine-induced myopathy

D. Cancer-associated myopathy

E. Infectious myopathy

Drug induced myopathy

	Steroid	Anti-malarials	Colchicine	Statin
Onset	Subacute-chronic	Chronic	Acute-subacute	
Risk	▪ Prednisolone > 20 mg/day at least 2 WK ▪ Cushingoid	▪ Duration > 5 Y ▪ Cardiomyopathy ▪ Arrythmia ▪ Retinopathy	▪ CKD ▪ Drug interaction with CYP3A4/P-glycoprotein inhibitors (*cyclosporine, clarithromycin, ketoconazole, itraconazole, ritonavir, diltiazem, verapamil, erythromycin, fluconazole)* ▪ Concomitant drug (*statin , fibrate, or digoxin)*	▪ CKD ▪ Drug interaction ▪ Hypothyroid ▪ Anti-HMGCR (ANA)
Myopathy	▪ Myopathic	Myopathic and neuropathic pattern		Myopathic
CK	Normal	Abnormal		
Biopsy	▪ Muscle fiber type 2 atrophy ▪ No inflammation	▪ Muscle fiber hypertrophy ▪ Vacuoles ▪ Rarely inflammation ▪ Curvilinear bodies (anti-malarials)		▪ Necrotizing myositis ▪ Myocyte necrosis ▪ Rarely inflammation (macrophage)
Rx	▪ Steroid discontinuation or tapering with steroid-sparing agents	▪ Anti-malarial/colchicine discontinuation		▪ Statin discontinuation ▪ Short course of steroid (Anti-HMGCR) ▪ ±Re-challenging

Case 12.

- A 65-year-old man presents with acute painless vision loss (3 days).
- He had temporal headache, fever (1 month) and shoulder morning stiffness.
- Exam: temporal tenderness, pale swollen optic disc.
- He was on warfarin due to AF.
- ESR 90 mm/hr. CT brain normal.

What is the most appropriated management in this patient?

A. Temporal artery biopsy
B. Temporal artery ultrasound
C. Oral high dose prednisolone
D. Pulse methylprednisolone
E. Tocilizumab

Features	Giant cell arteritis	Takayasu's arteritis
F:M; Age	2:1; >50 years (Caucasian)	8:1; <40 years (Asian)
Fever	Common	Uncommon
PMR	Common	Rare
Headache	Common (temporal arteritis)	Rare
AION/stroke (carotid and vertebrobasilar hypoperfusion)	Common	Uncommon
Claudication	Jaw	Extremities
Aorta and major branches	Uncommon (LV-GCA)	Common
Bruit, unequal BP, renovascular hypertension	Rare	Common

2021 ACR/Vasculitis Foundation Guideline for Diagnostic Testing in GCA

• We conditionally recommend temporal artery biopsy over temporal artery ultrasound/MRI for establishing a diagnosis of GCA.
• We conditionally recommend an initial unilateral temporal artery biopsy over bilateral biopsies.
• We conditionally recommend a long segment temporal artery biopsy specimen (>1 cm).
• We conditionally recommend obtaining a temporal artery biopsy specimen within 2 weeks of starting oral glucocorticoids.
• For patients with newly diagnosed GCA, we conditionally recommend obtaining noninvasive vascular imaging to evaluate large vessel involvement.

2023 EULAR Recommendations for the Use of Imaging in Large Vessel Vasculitis in Clinical Practice

Suspected GCA (mural inflammation)	Ultrasound	CT	High-resolution MRI	FDG-PET
Cranial arteries	+ (temporal arteries)	-	+	+
Extracranial arteries	+ (axillary arteries)	+	+	+
Structural damage	+	+	+	+
Suspected relapse when ESR/CRP unreliable	+	-	+	+

Conventional angiography is not recommended for the diagnosis of GCA or TAK

In patients with suspected GCA,

- An early imaging test is recommended to support the clinical diagnosis of GCA, assuming high expertise and prompt availability of the imaging technique.

- Imaging should not delay initiation of treatment (ideally within 72 hours of commencing GC therapy).

Criteria

2022 AMERICAN COLLEGE OF RHEUMATOLOGY / EULAR

CLASSIFICATION CRITERIA FOR **GIANT CELL ARTERITIS**

CONSIDERATIONS WHEN APPLYING THESE CRITERIA

- **These classification criteria should be applied to classify the patient as having giant cell arteritis when a diagnosis of medium-vessel or large-vessel vasculitis has been made**
- **Alternate diagnoses mimicking vasculitis should be excluded prior to applying the criteria**

ABSOLUTE REQUIREMENT

Age ≥ 50 years at time of diagnosis	

ADDITIONAL CLINICAL CRITERIA

Morning stiffness in shoulders/neck	+2
Sudden visual loss	+3
Jaw or tongue claudication	+2
New temporal headache	+2
Scalp tenderness	+2
Abnormal examination of the temporal artery[1]	+2

LABORATORY, IMAGING, AND BIOPSY CRITERIA

Maximum ESR ≥ 50 mm/hour or maximum CRP ≥ 10 mg/liter[2]	+3
Positive temporal artery biopsy or halo sign on temporal artery ultrasound[3]	+5
Bilateral axillary involvement[4]	+2
FDG-PET activity throughout aorta[5]	+2

Sum the scores for 10 items, if present. A score of ≥ 6 points is needed for the classification of GIANT CELL ARTERITIS.

2021 ACR/Vasculitis Foundation Guideline for GCA

IV pulse GCs
- IV methylprednisolone 500–1,000 mg/day (adults) or equivalent for 3–5 days

High-dose oral GCs
- Prednisone 1 mg/kg/day up to 80 mg or equivalent

Adjunctive treatment
- Statin in high CVD risk
- LD-ASA in critical or flow-limiting involvement of the vertebral or carotid arteries