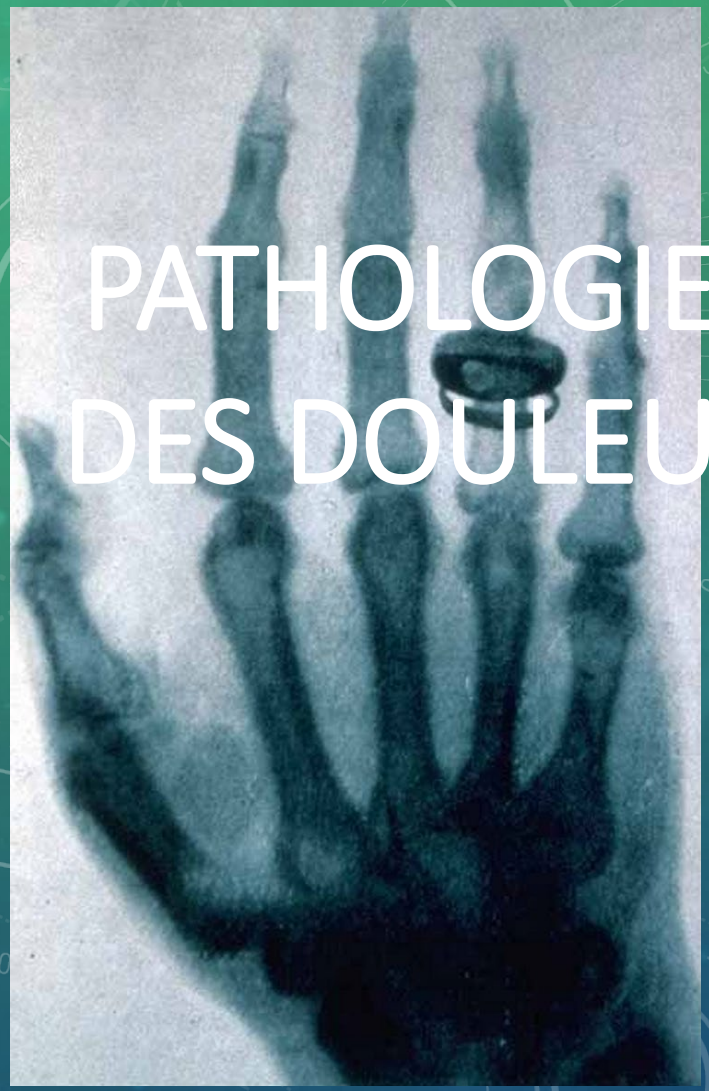

PATHOLOGIES RHUMATOLOGIQUES CAUSANT DES DOULEURS ARTICULAIRES, MUSCULAIRES ET/OU OSSEUSES

FORMATION: PROGRAMME DE FELLOWSHIP EN MÉDECINE DE LA DOULEUR

COURS: LES GRANDS SYNDROMES DOULOUREUX ET LES POPULATIONS PARTICULIÈRES

MMD 8801

DÉPARTEMENT DE MÉDECINE

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AFFILIÉ À
Université de Montréal

PLAN

Première partie

- Rhumatologie
- Approche des polyarthrites
- Polyarthrites
  - Polyarthrite rhumatoïde
  - Polyarthrites séronégatives
  - Polymyalgia rheumatica et artérite à cellules géantes

Deuxième partie

- Polyarthrites
  - Spondyloarthropathies
  - Arthrite psoriasique
- Monoarthrites
  - Infectieuses
  - Micro-cristallines

Troisième partie

- Connectivites
- Vasculites
- Fibromyalgie

DEUXIÈME PARTIE

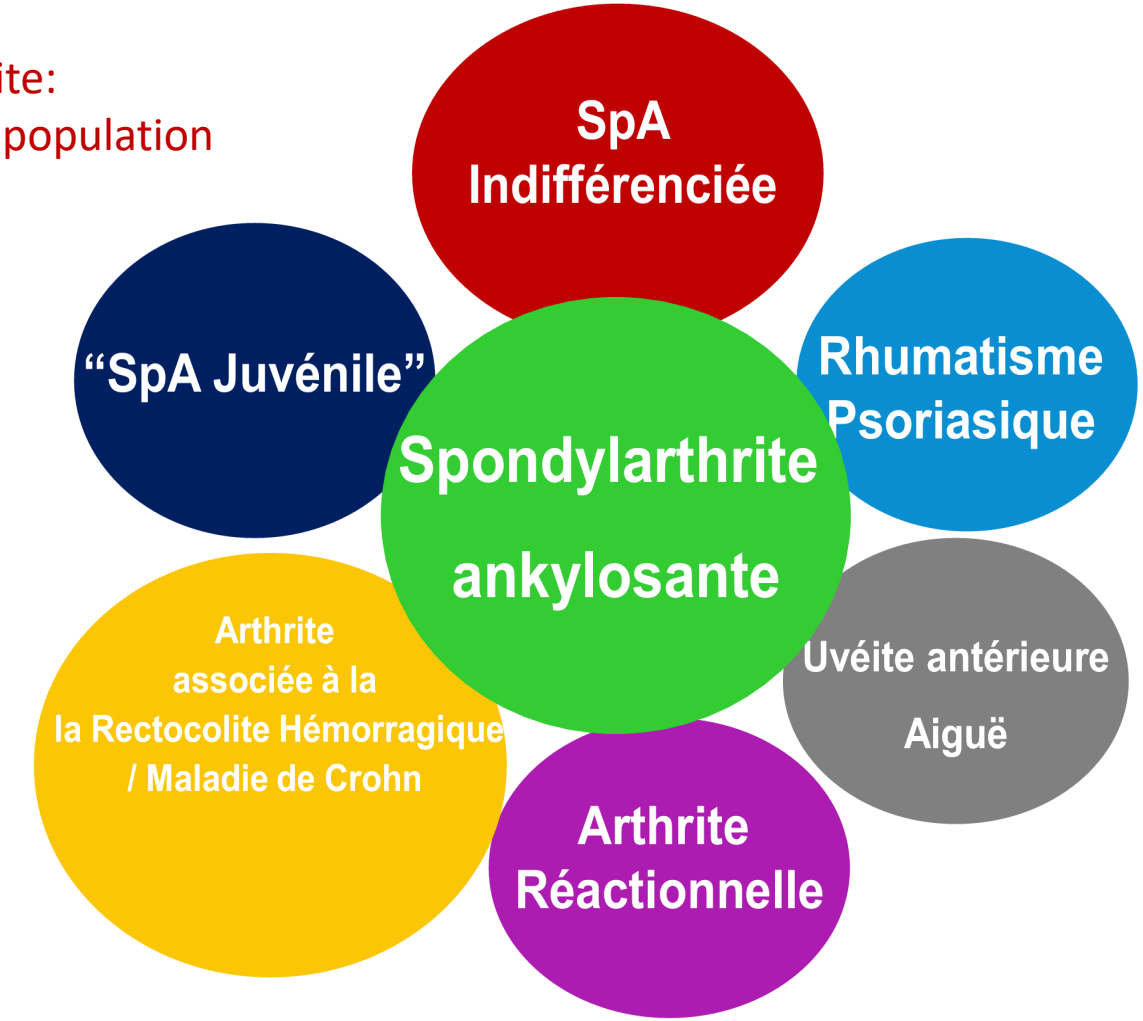
SPONDYLOARTHROPATHIES (SPA)

SPA: DÉFINITION ET TERMINOLOGIE

- Ensemble des entités rhumatologiques associées avec une atteinte inflammatoire de la colonne vertébrale et/ou des articulations sacro-iliaques
- Caractérisée par la lombalgie à caractère inflammatoire
- Spondylarthropathie/arthrite séronégative
- Spondylarthropathie/arthrite axiale vs périphérique
- Spondylite axiale
- Spondlyloarthropathie/arthrite non radiographique
- Spondylite ankylosante

Concept de Spondylarthrite (SpA)

Spondylarthrite:
0,5-2 % de la population



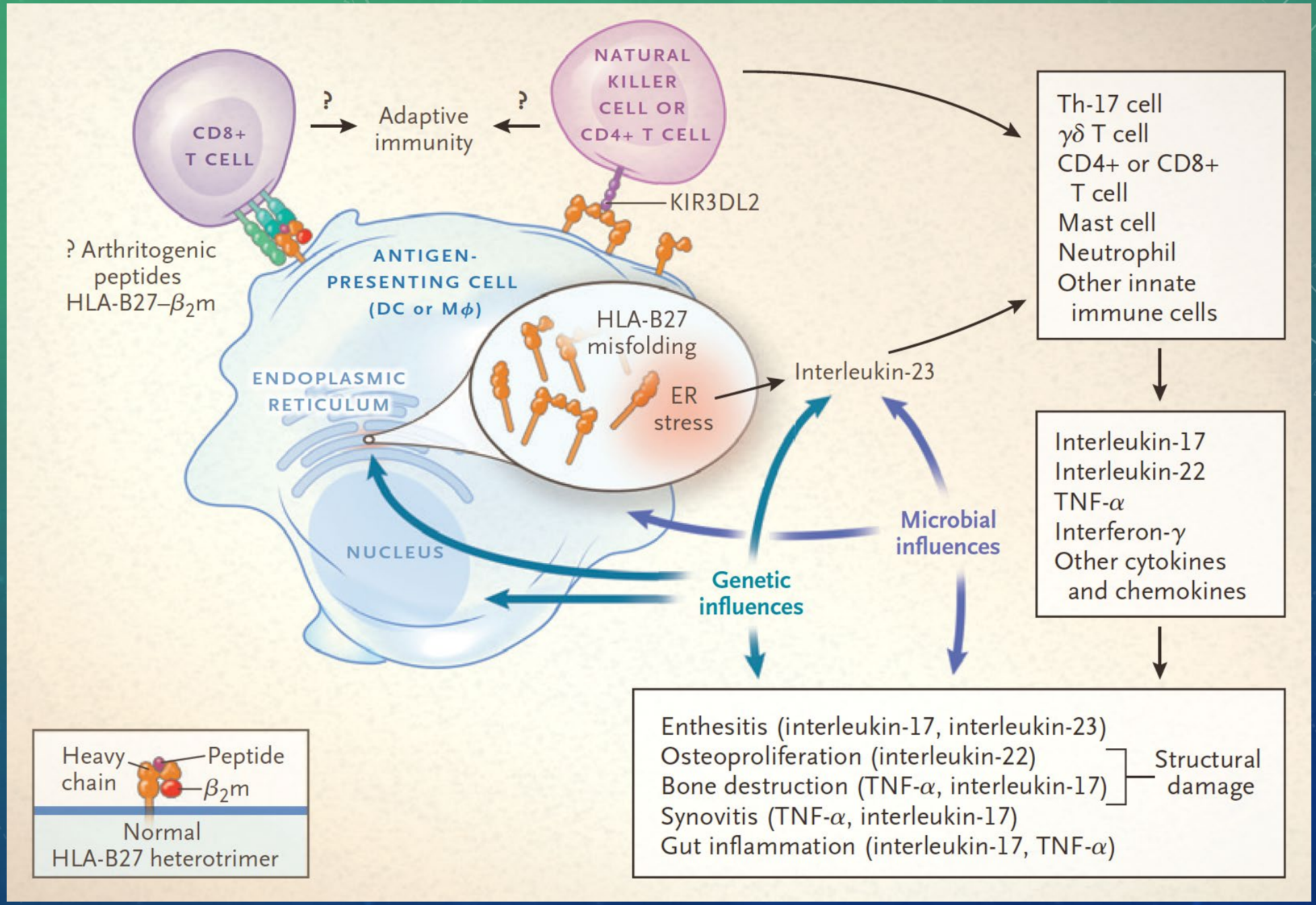
Lombalgie chronique 5% = inflammatoire

SPA: LOMBALGIE INFLAMMATOIRE

Critères de l'American SpondyloArthritis Society - ASAS (4/5)

- Début avant l'âge de 40 ans
- Début insidieux
- Amélioration de la douleur/raideur avec l'exercice
- Pas d'amélioration avec le repos
- Douleur la nuit (s'améliorant avec le mouvement)

Autres caractéristiques possibles: raideur matinale, fessalgie alternante, amélioration avec l'usage d'AINS



N Engl J Med 2016;374:2563-74.

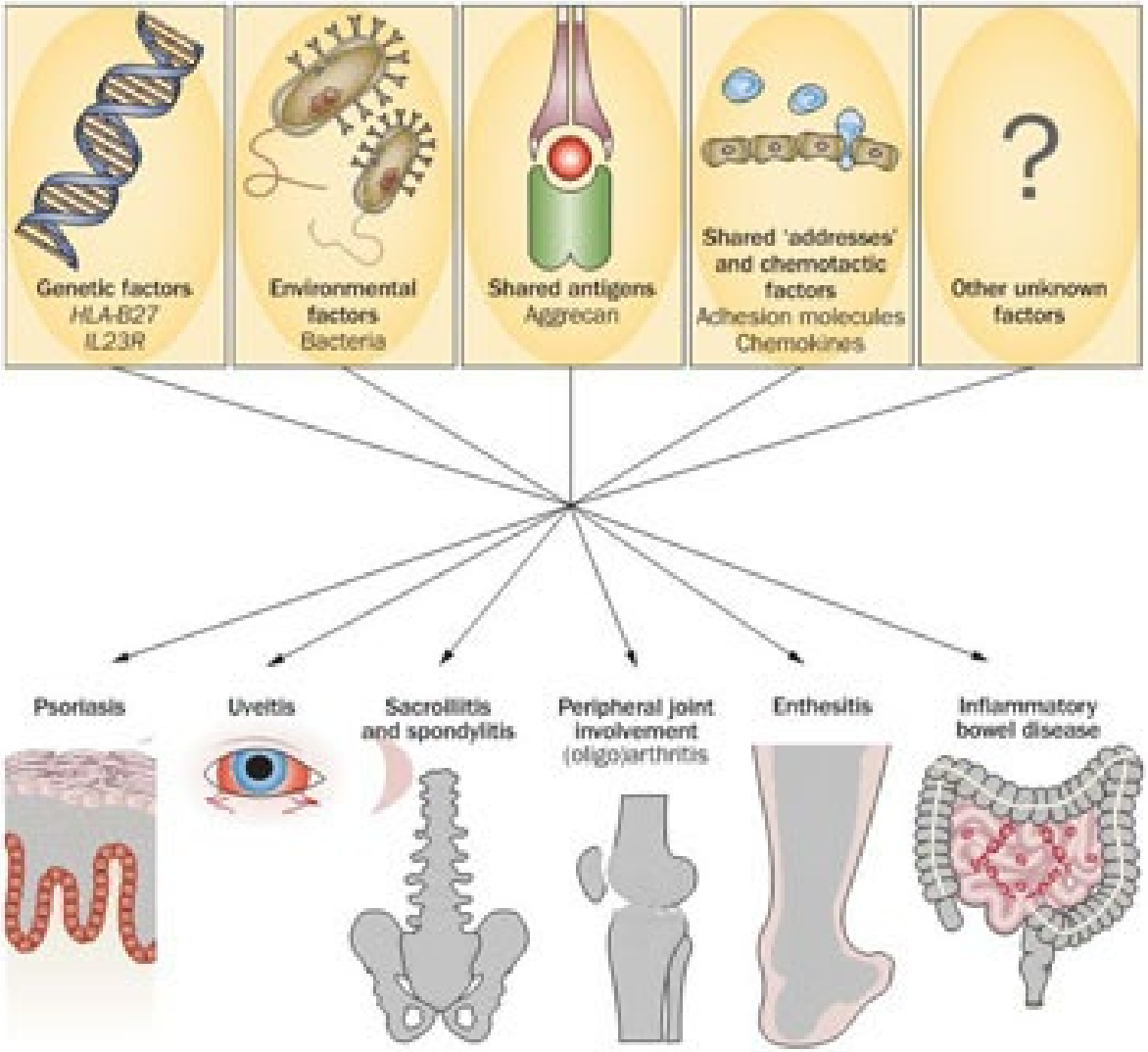


Figure 1 | The skin, eyes, spine, peripheral joints, tendons and bowel can be simultaneously inflamed in spondyloarthritis. Factors that could contribute to this multiorgan manifestation include genes such as *HLA-B27* and *IL23R*, environmental factors such as bacteria, shared antigens such as aggrecan, and common leukocyte migration factors such as adhesion molecules or chemotactic stimuli. Factors that are as yet to be identified undoubtedly contribute to this amalgamation of inflammation.

ASAS Classification Criteria for Spondyloarthritis (SpA)

In patients with ≥3 months back pain and age at onset <45 years

Sacroiliitis on imaging plus ≥1 SpA feature

OR

HLA-B27 plus ≥2 other SpA features

SpA features
- inflammatory back pain (IBP)
- arthritis
- enthesitis (heel)
- uveitis
- dactylitis
- psoriasis
- Crohn's/colitis
- good response to NSAIDs
- family history for SpA
- HLA-B27
- elevated CRP

Sensitivity: 79.5%, Specificity: 83.3%; n=975

In patients with peripheral symptoms ONLY

Arthritis or enthesitis or dactylitis

plus

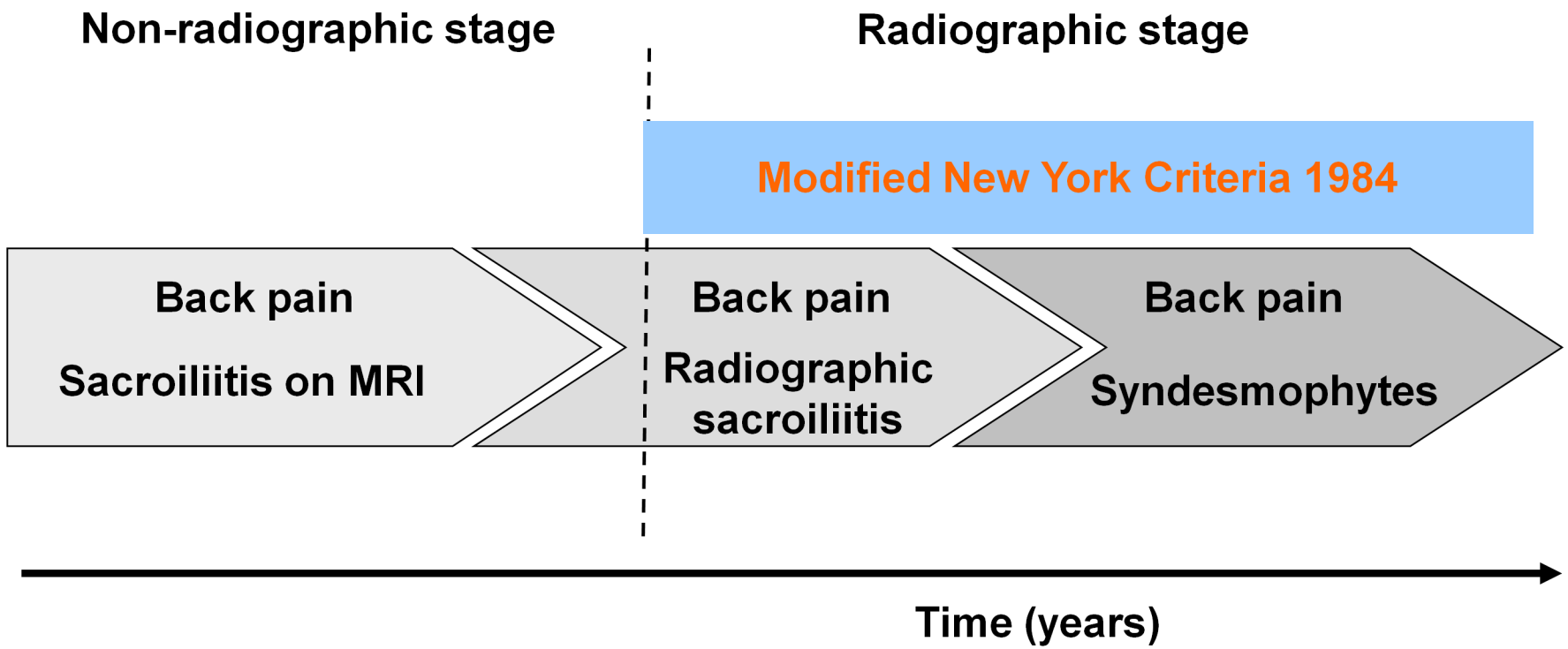
≥1 SpA feature
- uveitis
- psoriasis
- Crohn's/colitis
- preceding infection
- HLA-B27
- sacroiliitis on imaging

OR

≥2 other SpA features
- arthritis
- enthesitis
- dactylitis
- IBP ever
- family history for SpA

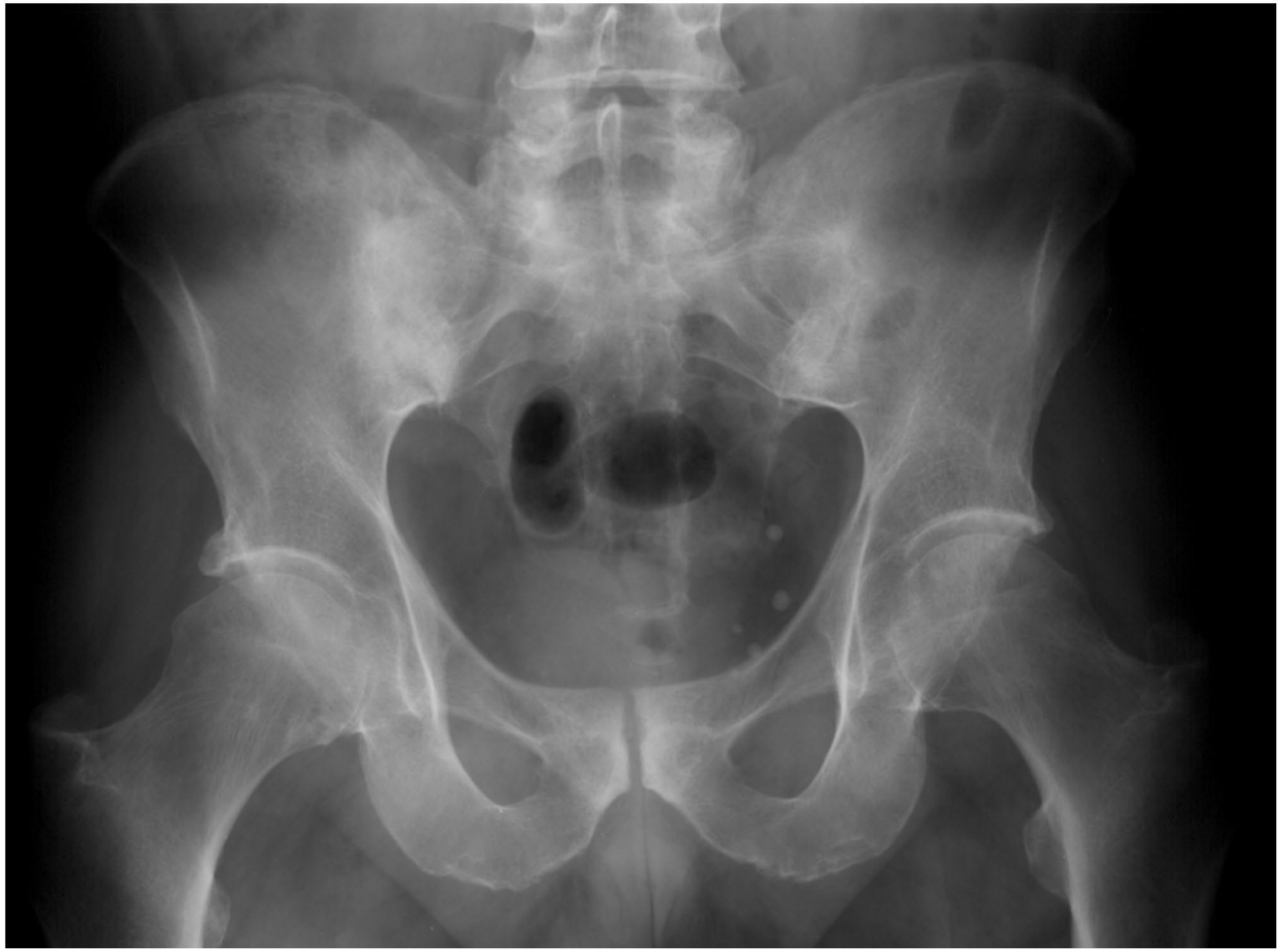
Rudwaleit M et al. Ann Rheum Dis 2011;70:25-31 (with permission)

Axial Spondyloarthritis



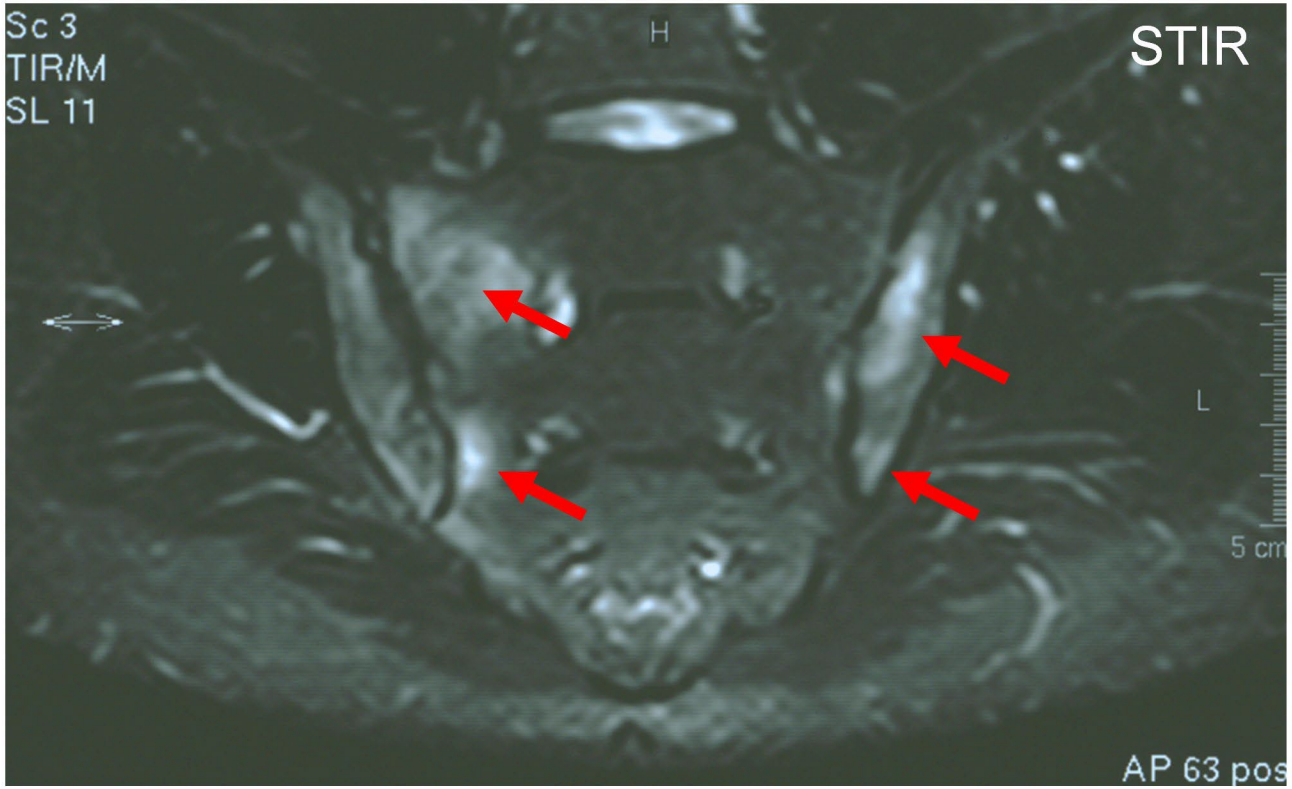
Rudwaleit M et al. Arthritis Rheum 2005;52:1000-8 (with permission)

Sacroiliitis Grade 3 Bilaterally



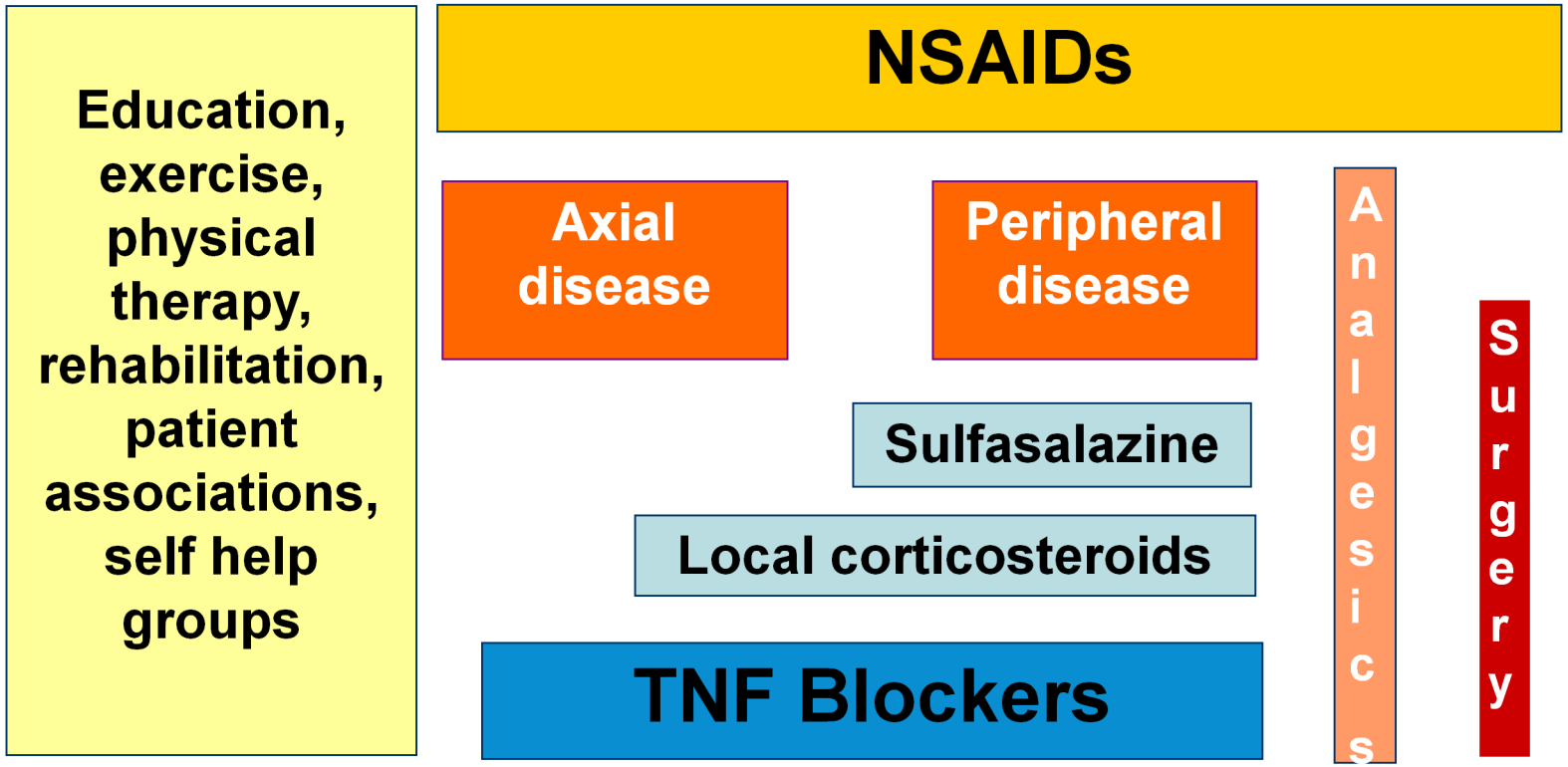
Definition of Positive MRI-SI Joint

- subchondral bone marrow edema
- acute (bilateral) sacroiliitis



Rudwaleit M et al. Ann Rheum Dis 2009;68:1520-1527 (with permission)

ASAS/EULAR Recommendations for the Management of Ankylosing Spondylitis



Zochling J et al. Ann Rheum Dis 2006;65:442-52 (with permission)

Dosage of NSAIDs Used to Treat Ankylosing Spondylitis

drug	half-life (hours)	approved maximal daily dosage -normally for arthritis- (mg)
Aceclofenac#	about 4	200
Celecoxib	8-12	400
Diclofenac*	about 2	125-150
Etoricoxib#	about 22	90
Ibuprofen	1.8-3.5	2400-3200
Indomethacin*	about 2	150-200
Ketoprofen	1.5-2.5	200-300
Meloxicam	about 20	15
Naproxen	10-18	1000
Phenylbutazone#	50-100	600
Piroxicam	30-60	20

*retard formula available
not approved in the US

Adapted from Song IH et al. Arthritis Rheum 2008;58:929-38

Dosage of TNFα-Blockers in AS, PsA and IBD

Drug	Dosage AS	Dosage PsA	Dosage IBD	Application
Infliximab	5 mg/kg	5 mg/kg	5 mg/kg	i.v. at week 0, 2, 6, q6 / q8*
Etanercept	25 mg 50 mg	25 mg 50 mg	Not used	s.c. twice weekly s.c. once weekly
Adalimumab	40 mg	40 mg	40 mg	s.c. every 2 weeks**
Golimumab	50 mg	50 mg	50 mg***	s.c. every 4 weeks**
Certolizumab pegol	200 mg 400 mg	200 mg 400 mg	400 mg****	s.c. every 2 weeks***** s.c. every 4 weeks*****

* Psoriatic arthritis and inflammatory bowel disease (IBD)

** For IBD: initially higher dose

*** Approved for ulcerative colitis only

**** Not approved in the EU

***** After initial loading dose 400 mg s.c. at weeks 0, 2 and 4

bDMARDs in AxSpA, Pso, PsA, IBD and RA (3)

Target	Targeting substance	Efficacy in				
		*axSpA**	*PsA*	*Psoriasis*	*Crohn's disease*	*RA*
Interleukin-17	Secukinumab (monoclonal antibody to IL-17A)	+	+	+	-	-
	Ixekizumab (monoclonal antibody to IL-17A)	+	+	+	?	+?
	Netakimab (monoclonal antibody to IL-17A)	+	?	?	?	?
	Bimekizumab (monoclonal antibody to IL-17 A and F)	+	+	+	?	+?
	Brodalumab (monoclonal antibody to IL-17 receptor)	?	+	+	-	-
Interleukin-12/23	Ustekinumab (monoclonal antibody to IL-12/23)	-	+	+	+	-
Interleukin-23	Guselkumab (monoclonal antibody to IL-23)	?	+	+	?	-
	Tildrakizumab (monoclonal antibody to IL-23)	?	?	+	?	?
	Risankizumab (monoclonal antibody to IL-23)	-	+	+	+	?
	Brazikumab (monoclonal antibody to IL-23)	?	?	?	+	?

*Data on efficacy in the two subgroups of axial SpA (nonradiographic axial SpA and ankylosing spondylitis) exist only for ustekinumab; other drugs for which efficacy data are available were investigated until now in ankylosing spondylitis only.

+ efficacy shown in at least one RCT

+? some data from pilot or proof-of-concept trials indicate a positive effect

- lack of efficacy shown in at least one RCT

-? some data from pilot or proof-of-concept trials indicate a lack of effect

? no conclusive data available regarding efficacy

Modified from: Sieper J et al. Nat Rev Rheumatol 2016;12:282-95
Baker KF et al. Ann Rheum Dis 2018;77:175-87

Targeted Synthetic DMARDs in AxSpA, Pso, PsA, IBD and RA

Target	Targeting substance	Efficacy in				
		*axSpA**	*PsA*	*Psoriasis*	*Crohn's disease*	*RA*
Janus kinases (JAKs)	Tofacitinib (JAK1, 2 and 3 inhibitor)	+	+	+	-	+
	Baricitinib (JAK1 and 2 inhibitor)	?	?	+	?	+
	Peficitinib (JAK1, 2 and 3 inhibitor)	?	?	+	?	+
	Filgotinib (JAK1 inhibitor)	+	+	?	+	+
	Upadacitinib (JAK1 inhibitor)	+	?	?	?	+
Phosphodiesterase-4	Apremilast (phosphodiesterase-4 inhibitor)	-	+	+	?	-

*Drugs for which efficacy data are available were investigated until now in ankylosing spondylitis only.

+ efficacy shown in at least one RCT

+? some data from pilot or proof-of-concept trials indicate a positive effect

- lack of efficacy shown in at least one RCT

-? some data from pilot or proof-of-concept trials indicate a lack of effect

? no conclusive data available regarding efficacy

Modified from: Sieper J et al. Nat Rev Rheumatol 2016;12:282-95
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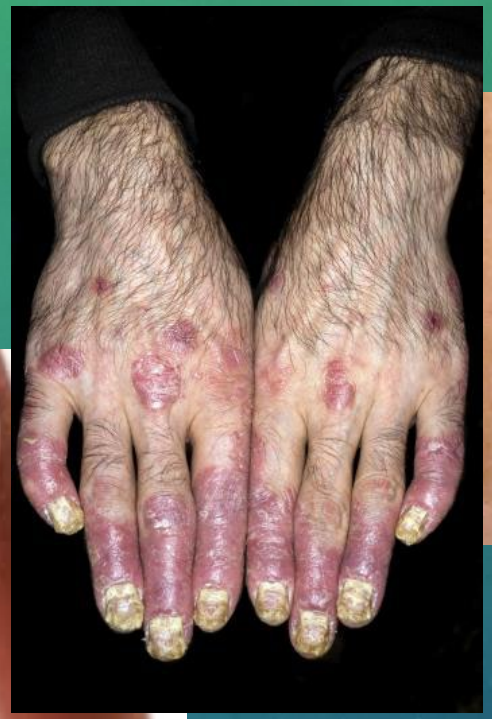
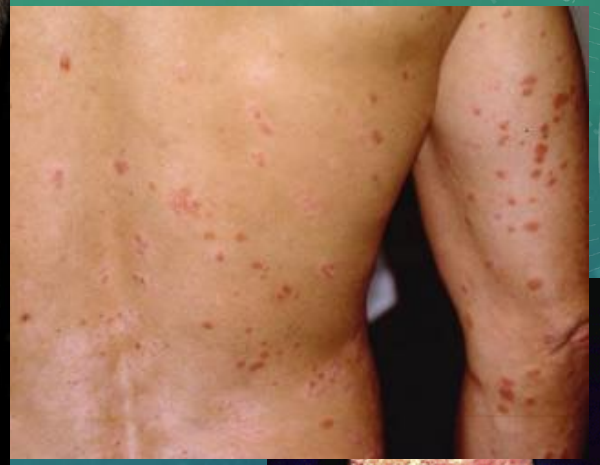
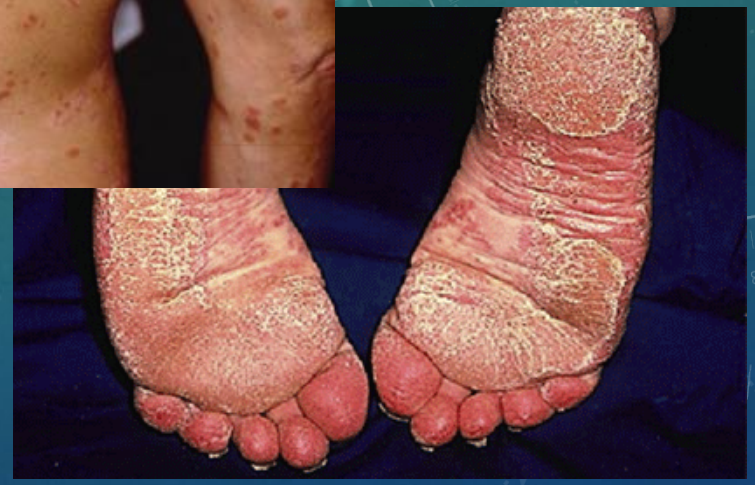






ARTHRITE PSORIASIQUE (APSO)

ÉPIDÉMIOLOGIE

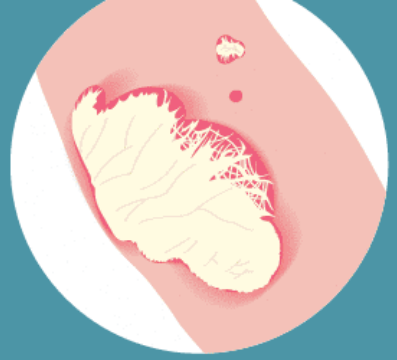
- Psoriasis cutané: 2-3% de la population
- Arthrite psoriasique: 30% des patients avec psoriasis (environ 1% de la population)
- 60% développe l’arthrite dans les 10 ans suivant la maladie cutanée
- 20% simultanément (dans les 1-2 ans)
- 10% plus d’un an avant

Classification of Psoriatic-Arthritis: CASPAR Criteria

To meet the CASPAR criteria for PsA, a patient must have inflammatory articular disease (joint, spine, or entheseal) and score ≥3 points based on these categories.	
	POINTS
1. Evidence of psoriasis Current psoriasis Personal history of psoriasis Family history of psoriasis	2 or 1 or 1
2. Psoriatic nail dystrophy Pitting, onycholysis, hyperkeratosis	1
3. Negative test result for rheumatoid factor	1
4. Dactylitis Current swelling of an entire digit History of dactylitis	1 or 1
5. Radiologic evidence of juxta-articular new bone formation Ill-defined ossification near joint margins on plain x-rays of hand/foot	1

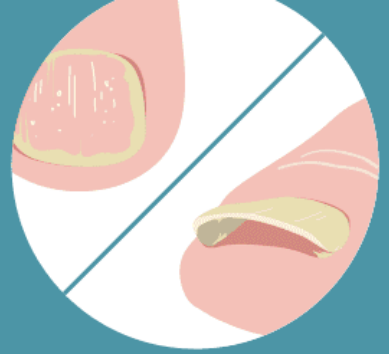
CASPAR, **C**l**AS**sification criteria for **P**soriatic **AR**thritis

Taylor W et al. Arthritis Rheum 2006;54:2665-2673



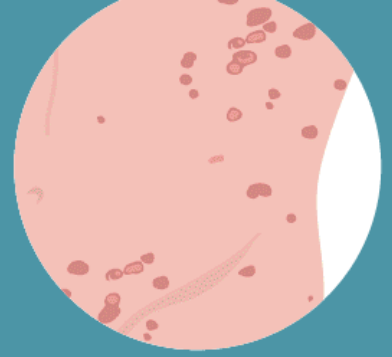
Plaque Psoriasis

inflamed skin and scaly, silvery plaques with a clear border



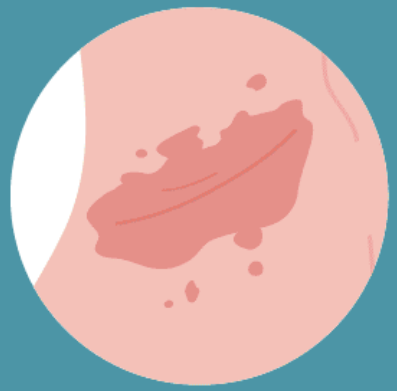
Nail Psoriasis

nail pitting and nail separation

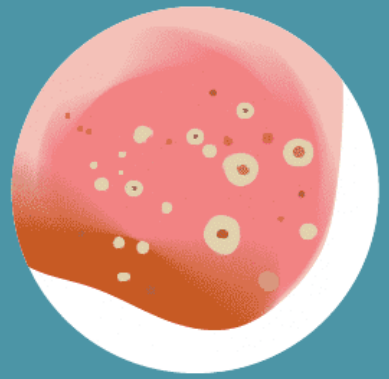


Guttate Psoriasis

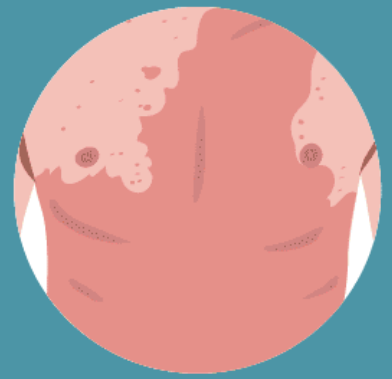
teardrop-shaped bumps



Inverse Psoriasis



Pustular Psoriasis



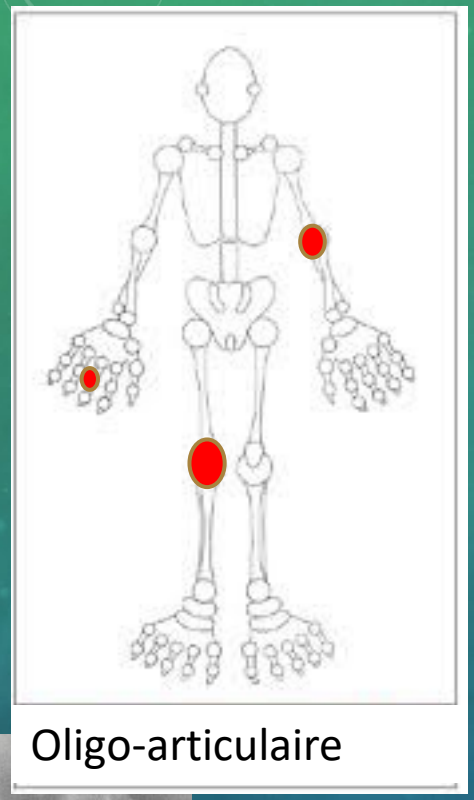
Erythrodermic Psoriasis

Où chercher le psoriasis?

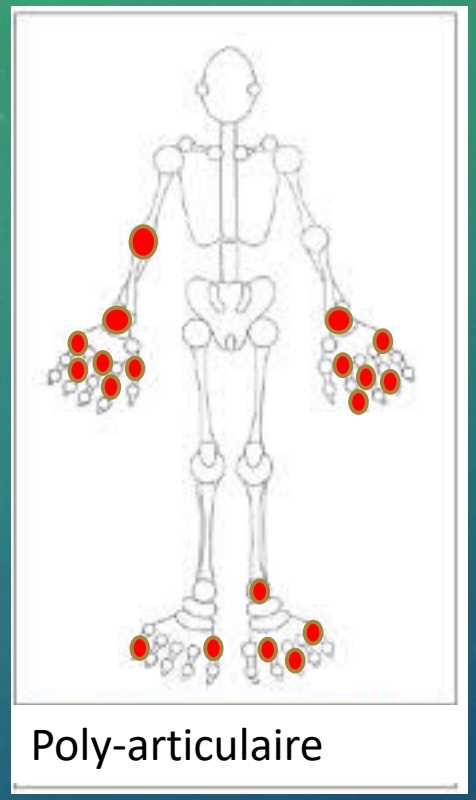
- Coudes
- Genoux
- Cuir chevelu
- Derrière les oreilles
- Paumes des mains
- Plantes des pieds
- Ombilic
- Interfessier
- Scrotum/plis inguinaux
- Ongles

DISTRIBUTION

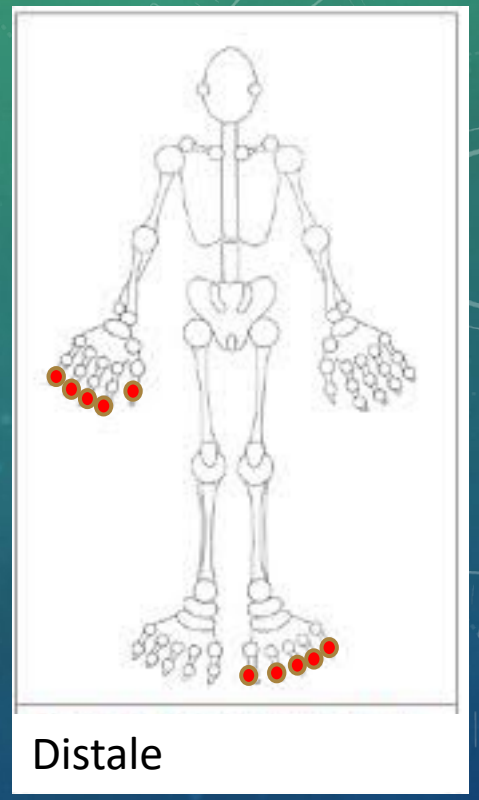
- Oligo-articulaire
- Poly-articulaire
- Distale
- Spondylite
- Arthrite mutilante



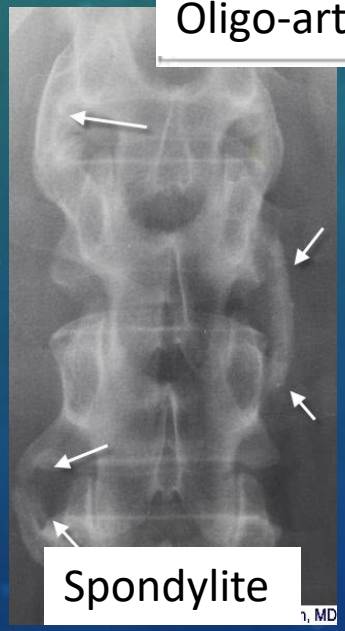
Oligo-articulaire



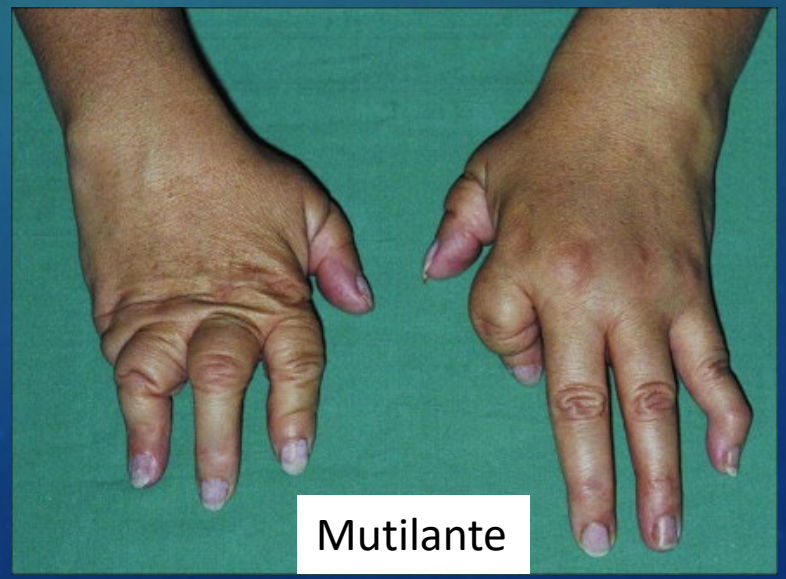
Poly-articulaire



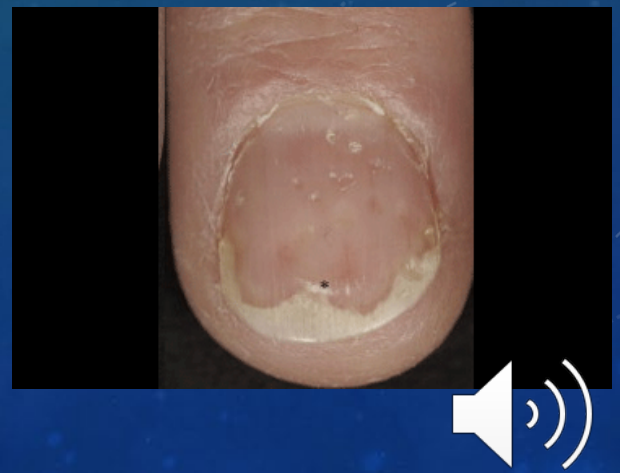
Distale



Spondylite

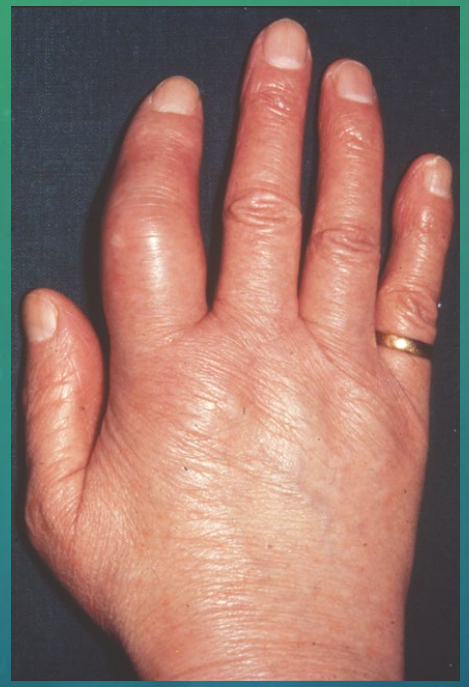


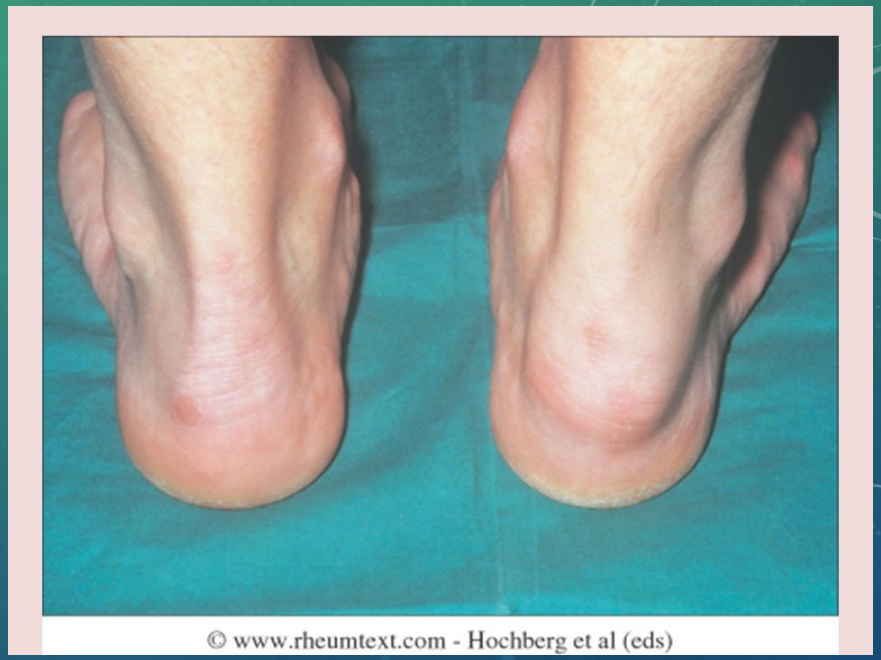
Mutilante



MANIFESTATIONS

- Psoriasis
- Arthrite
- Dactylite
- Enthésite
- Spondylite (HLA-B27)
- Uvéite
- Maladie inflammatoire de l’intestin (Crohn, colite ulcéreuse)
- Atteinte unguéale



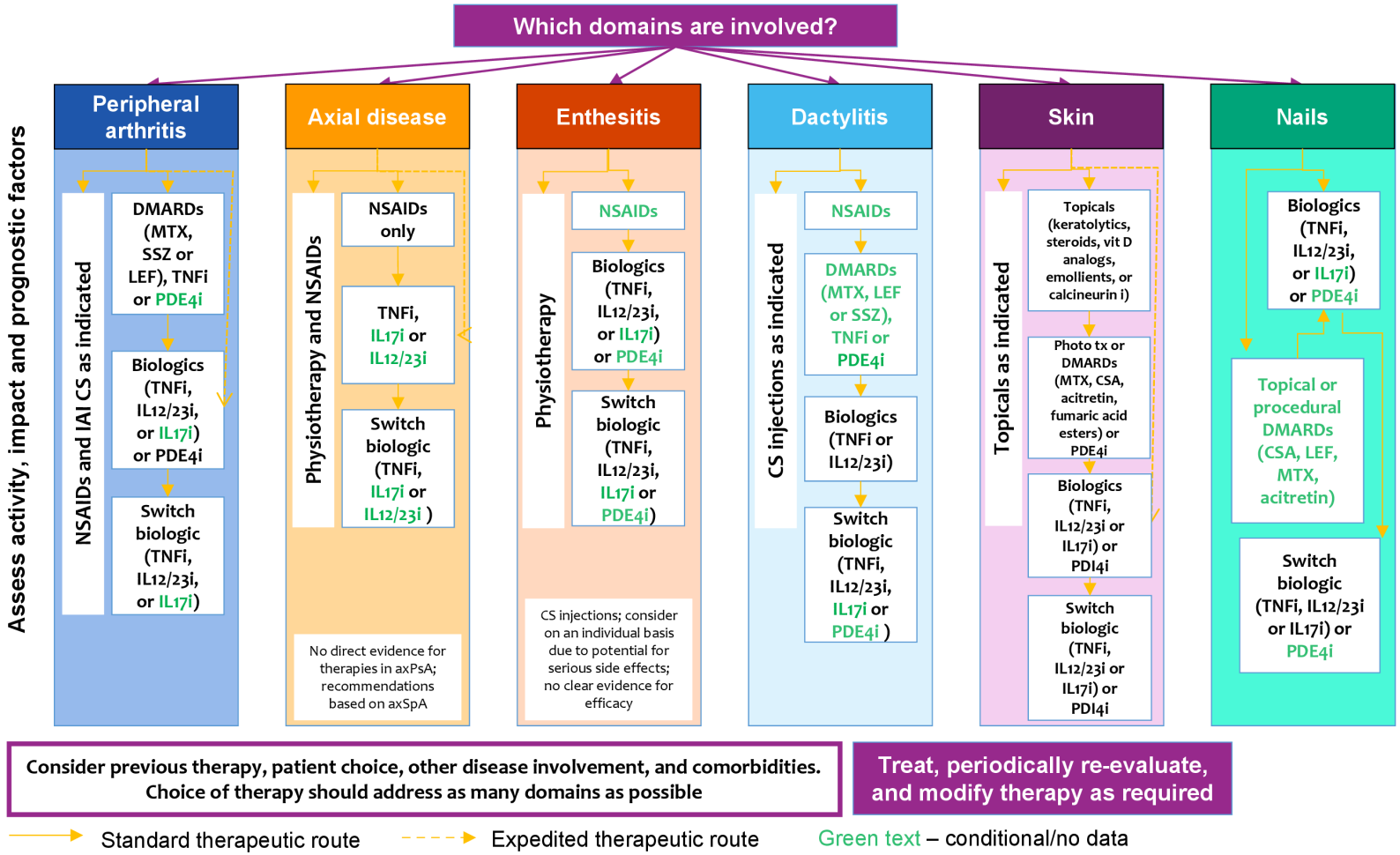


Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) 2015 Treatment Schema for Active Psoriatic Arthritis

Anti-TNF
Adalimumab
Certolizumab
Etanercept
Golimumab
Infliximab

Inhibiteur PDE4
Apremilast (Otezla[MD])
Biosimilaires
Auro, Jamp, GLN, Mint, Pms, Sandoz

Anti-IL12/23
Ustekinumab (Stelara[MD])



Anti-IL17
Secukinumab (Cosentyx[MD])
Ixekizumab (Taltz[MD])
Bimekizumab (Bimzelx[MD])
Brodalumab (Siliq[MD])

Anti-IL23
Guselkumab (Tremfya[MD])
Risankizumab (Skirizi[MD])
Tidrakizumab (Ilumya[MD])

Coates LC et al. Arthritis Rheum 2016;68:1060-71 (with permission)

MONOARTHRITE

MONOARTHRITE

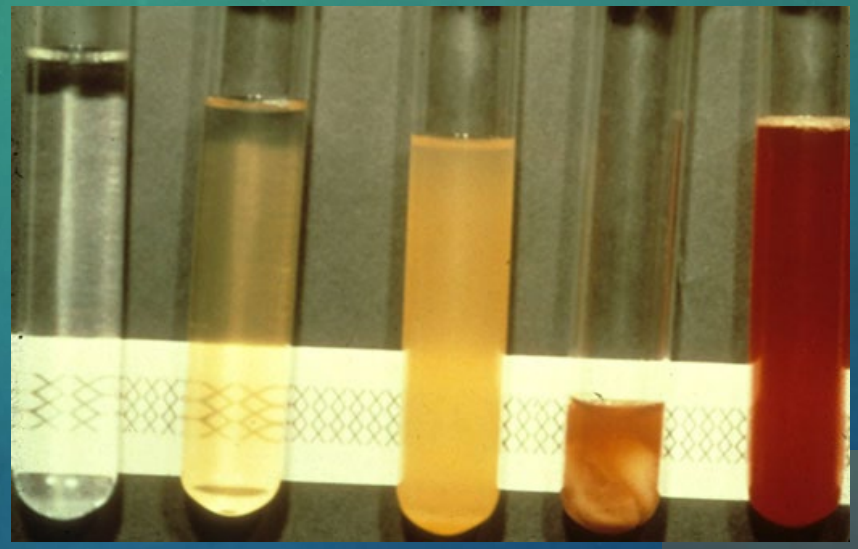
À différentier des atteintes péri-articulaires (e.g. bursite, tendinopathie, entorse, cellulite, dermite de stase, etc.)

Diagnostic différentiel de la monoarthrite	Causes non communes de monoarthrite
Arthrite septique (bactérienne, mycobactérienne, fungique) Arthropathies microcristallines • Goutte • Pseudo-goutte (Calcium pyrophosphate dihydrate deposition disease (CPPD)) • Hydroxyapatite deposition disease (HADD) • Autres cristaux (e.g. corticostéroïdes) Trauma (fracture, dérangement interne, hémarthrose) Ostéoarthrite (OA) Nécrose avasculaire Synovite villonodulaire pigmentée	Rhumatisme palindromique Arthrite juvénile idiopathique Autres polyarthrites (e.g. PAR)

Adapted from: Rheumaology Secrets, 8th edition, 2015.

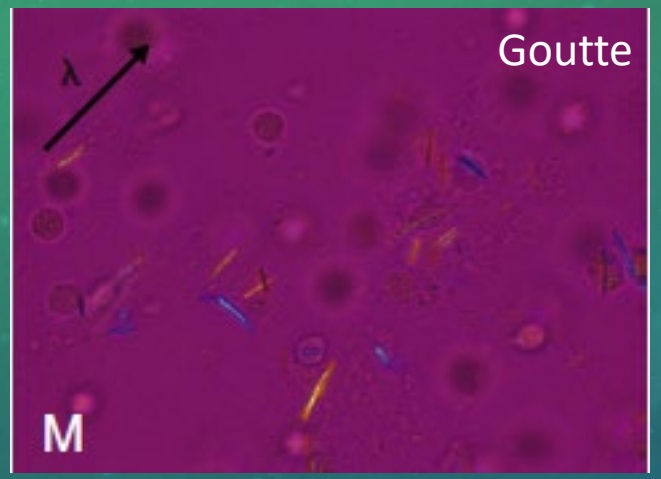
ANALYSE DU LIQUIDE SYNOVIAL (PONCTION ARTICULAIRE)

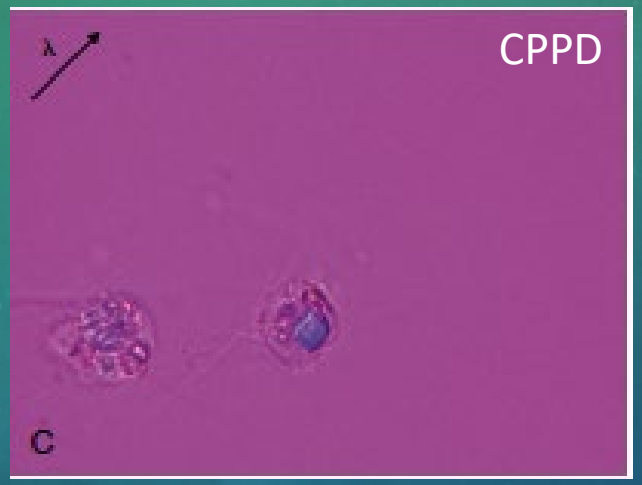
- Test le plus important dans une monoarthrite
- NE JAMAIS PONCTIONNER UNE ARTICULAIRE “PROTHÈSÉE”
- Analyse à faire:
  - Couleur/Transparence
  - Viscosité (blanc d’oeuf)
  - Décompte leucocytaire
  - Cultures
  - Visualisation des cristaux en microscopie polarisée
- Inutiles: glucose, protéines, LDH, acide urique, pH, électrolytes, anticorps

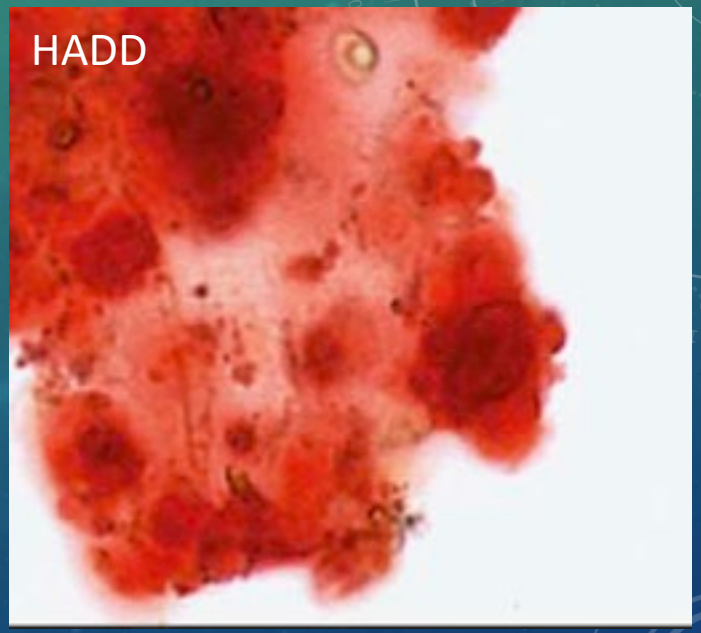


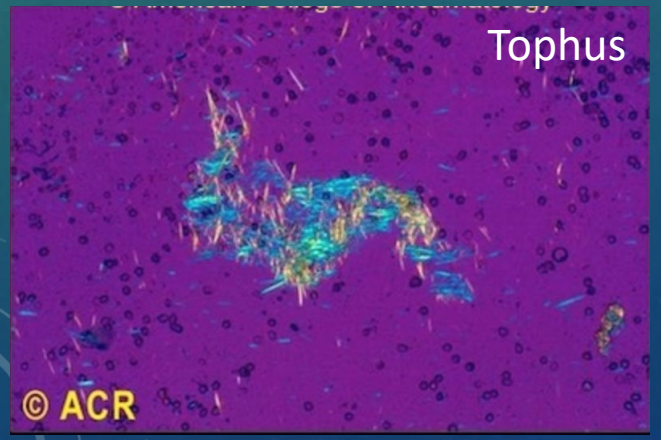
Type	Quality	Quantity	Cell count (cells/mm³)	Cultures	Microscopy	Associated conditions
Normal	Yellow Translucid Viscous	Minimal	0-200	Negative	No crystal <2 PMN/HPF	Normal
OA	Yellow Translucid Viscous	Moderate	200-2000	Negative	No crystal <5 PMN/HPF	OA
Inflammatory	Yellow Trouble Non viscous	Moderate-High	2000-50 000	Negative	No crystal 5-25 PMN/HPF	CTD, sero-negative arthritides, JIA, vasculitis, auto-inflammatory syndromes, viruses, HADD
					Strongly negative bi-refringent needle-shaped crystals	Gout
					Midly positive bi-refringent rhomboid-shaped crystals	Pseudo-gout (CPPD)
				Positive	No crystal 5-25 PMN/HPF	Gonococcal, mycobacterial, fungal
Septic	Purulent Opaque Non viscous	Moderate-High	>50 000; often >100 000	Positive	No crystal >25 PMN/HPF	Bacterial
				Negative	Crystal >25 PMN/HPF	Crystal arthropathies (pseudo-septic)
Hemarthrosis	Red Opaque Non viscous Non coagulating	Moderate-High	Mostly RBC (non nucleated elements)	Negative (except if septic)	Mostly RBC (non nucleated elements)	Traumatic tap Internal derangement Fracture Tumors Coagulopathies Intense inflammation (bacterial, crystals)

MICROSCOPIE POLARISÉE







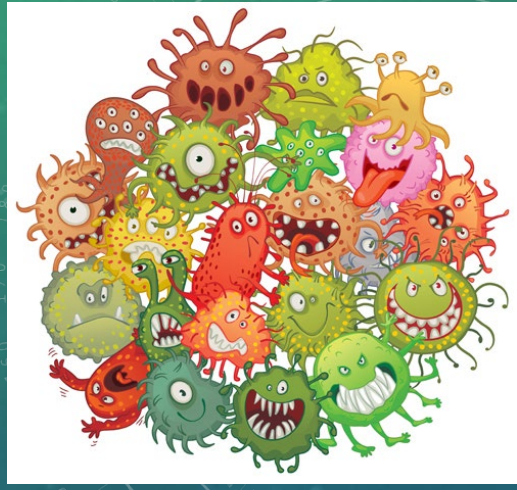


Gout and others crystal arthropathies, 1st edition 2012
ACR Rheumatology Image Library, http://images.rheumatology.org/
Hochberg Rheumatology, 6th edition 2015.

ARTHRITE SEPTIQUE

MEHMET BERKMEN AND MARIA PENIL “NEURONS” COMPOSED OF NESTERENKONIA, DEINOCOCCUS AND SPHINGOMONAS BACTERIA

MICRO-ORGANISMES IMPLIQUÉS



- Bactéries mono-articulaires: gonocoque vs autres
- Bactéries poly-articulaires: 10% des arthrites non-gonocociennes, gonocoque disséminé, rhumatisme articulaire aigu, endocardite infectieuse
- Virales (surtout poly-articulaires): parvovirus, rubéole, herpetoviruses (e.g. EBV), HAV, HBV, HCV, HIV, entéroviruses, alphaviruses (e.g. Chikunguya), Zika
- Fungiques: maladie de Whipple
- Spirochètes: maladie de Lyme, syphilis
- Mycobactériennes: axiales, périphériques, ostéomyélite, dactylite, ténosynovite, bursite
- Parasitaires
- Arthrite réactive: Chlamydia, Salmonella, Shigella, Yersinia, Campylobacter, post-Streptococcique

NON-GONOCOCCIQUES

- Staphylococcus aureus: 2/3 des cas, 50% MRSA
- Streptocoques des groupes A/B: 1/3 des cas
- Bacilles Gram-négatifs: 1/5 des cas
- Stretococcus pneumonia: 3%
- Polymicrobiennes: 4%

<2 mois	2 mois-5 ans	5-15 ans	>15 ans
S. aureus Streptocoques du groupe B Bacilles Gram-négatifs	Kingella kingae S. aureus S. pyogenes S. pneumoniae Haemophilus influenzae	S. aureus S. pyogenes	S. aureus (PAR, drogues) Bacilles Gram-négatifs (ROH, cancer, diabètes) S. pneumoniae (ROH, Hbpathies) Pseudomonas aeroginosa (drogues) Pasteurella multocida (chat/chien)

Adapted from: Rheumaology Secrets, 8th edition, 2015.

NON-GONOCOCCIQUES: PRÉSENTATION

- Genou 55% (hanche, cheville, épaule, coude)
- Poly-articulaire 10-19% (mauvais pronostic, patient très malade)
- Symptômes locaux: douleur, rougeur, chaleur, épanchement, MEC impossible, position fixe
- Symptômes systémiques: fièvre, sueurs, frissons, leucocytose, augmentation des paramètres inflammatoires
- Analyse du liquide synovial:
  - >100 000 cellules/mm^3 très suggestif (mais seulement dans 20-40% des cas)[1]
  - Coloration de Gram: 75% Cocci +, 50% Bacilles -
  - Cultures: 70-90% de positivité
- Radiographie: pas utile (enflure des tissus mous, tardivement perte de carticlage, érosions osseuses, déformation et ankylose)

JAMA 2007;297:1478-88.

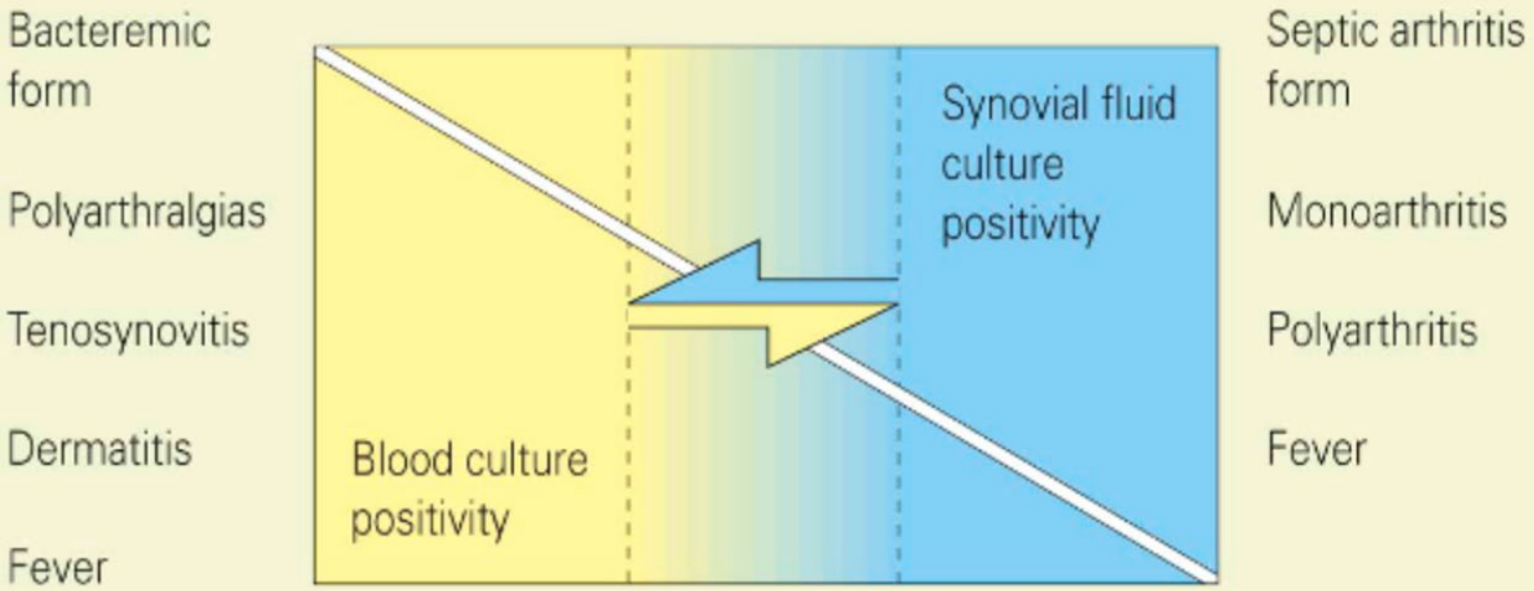
NON-GONOCOCCIQUES: TRAITEMENT

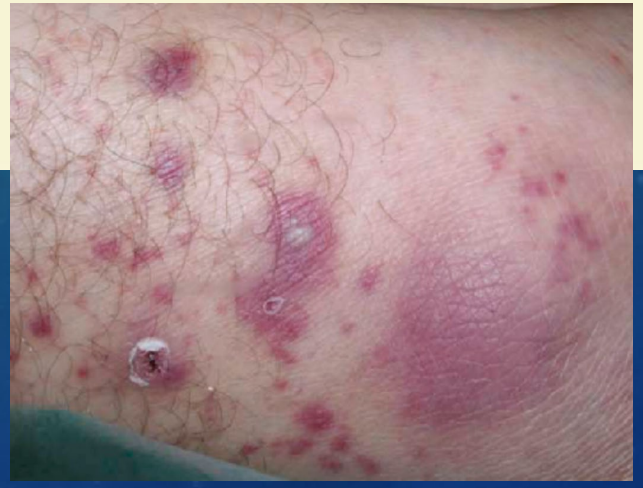
- Drainage
- Débridement chirurgical (orthopédie): hanche, épaule, axiale, inhabilité à faire un drainage acceptable, prosthèse, corps étranger, non-réponse après quelques jours d'antibiotiques/drainage, diagnostic tardif
- Analgésie
- Antibiotique (microbiologie-infectiologie)
  - Cocci Gram-positif: Vancomycine (>50% MRSA)
  - Bacilles Gram-positif (Listeria): Ampicillin+Gentamycin
  - Diplocoque Gram-negatif (N. gonorrheae): Ceftriaxone
  - Bacillles Gram-negatif: Ceftriaxone ou Cefotaxime
  - Aucune bactérie au Gram, patient immunocompétent: Vancomycin
  - Aucune bactérie au Gram, patient immunocompromis: Vancomycin+Ceftriaxone ou Cefotaxime
- Physiothérapie: passive puis active puis avec MEC
- Pronostic: 2-10% de mortalité (poly-articulaire, comorbidités), 30-50% avec douleur et/ou limitation

Migratoire
Additive

Sans douleur
Non prurigineux
Maculopapulaire
Vésiculaire
Tronc et extrémités

CLINICAL SPECTRUM OF DGI





Genou
Poignet
Cheville
Coude

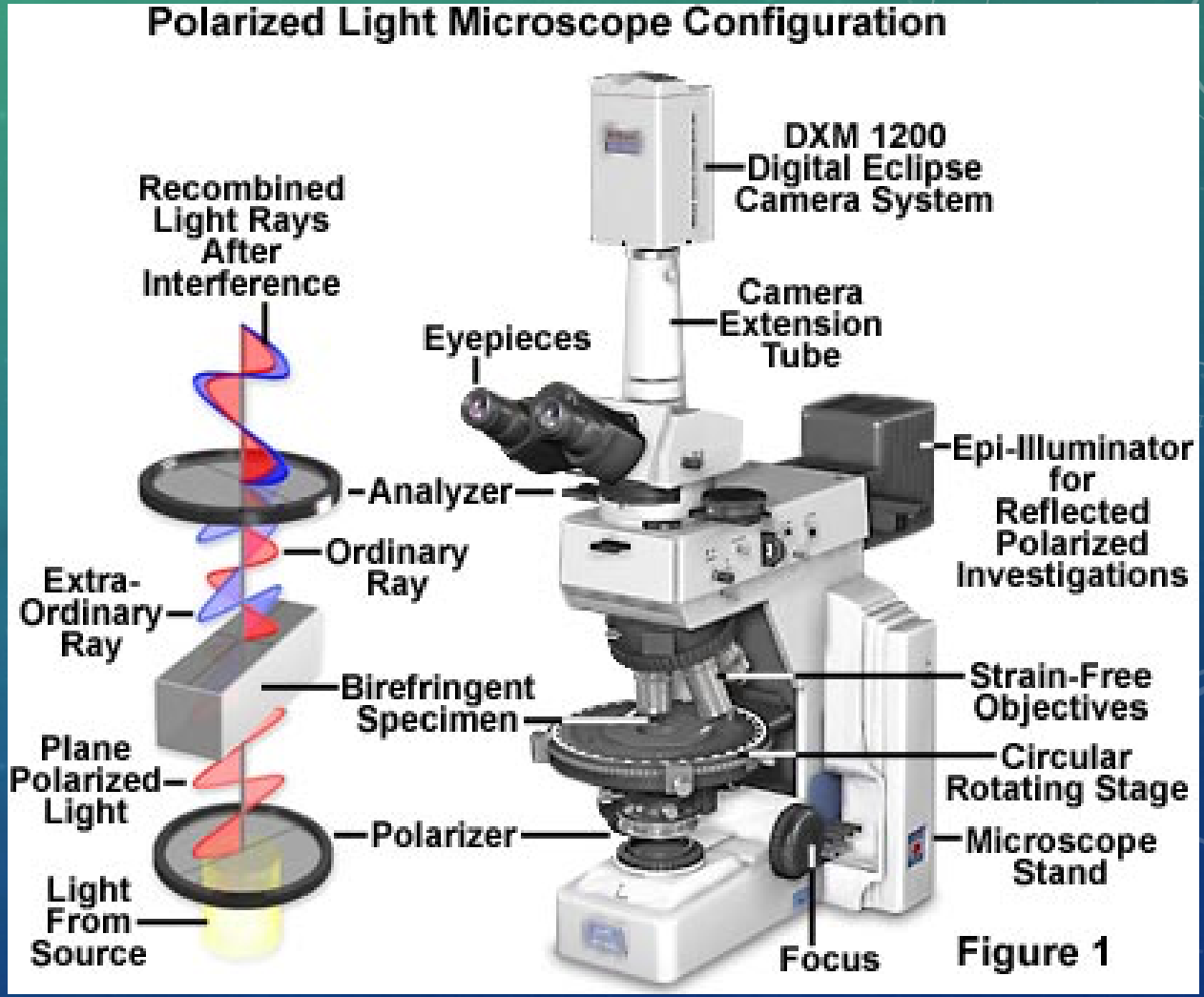
Adapted from: Hochberg Rheumatology, 6th edition, 2015.

GONOCOCCIQUE

- 1-3% des patients avec gonorrhée
- Habituellement jeunes patients en bonne santé, milieux urbains, non-Caucasien, statut socio-économique bas, faible éducation, ATCD ITSS, prostitution
- Positivité des cultures: liquide synovial <25%, génito-urinaire 80% (plus avec amplification par PCR), rectum 20%, pharynx 10%, sang <10%, peau rare
- Traitement:
  - Drainage répétitif sur quelques jours, chirurgie rarement indiquée
  - Ceftriaxone 1 g IM/IV die pour 7-10 jours suivi par Cefixime 400 mg PO bid pour 7 jours
  - Allergie aux β-lactam: Spectinomycin 2 g IM q12 heures
  - Azithromycin 1 g PO X1 ou doxycycline 100 mg PO bid pour 7 jours (traiter la Chlamydia chez tous)

The Chief Public Health Officer's Report on the State of Public Health in Canada 2013
Infectious Disease: The Never-Ending Threat
Public Health Agency of Canada, www.publichealth.gc.ca

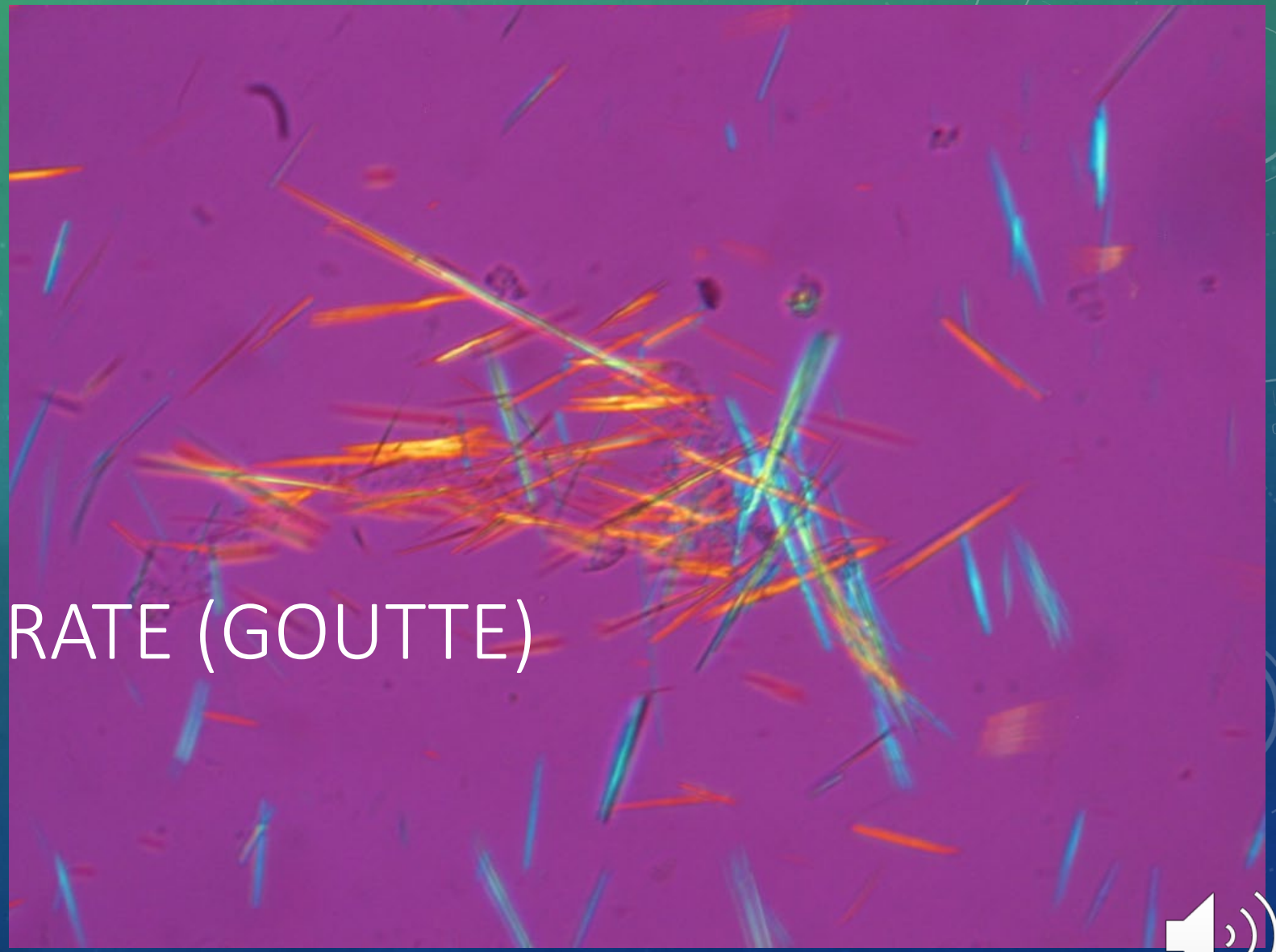
ARTHROPATHIES MICROCRISTALLINES



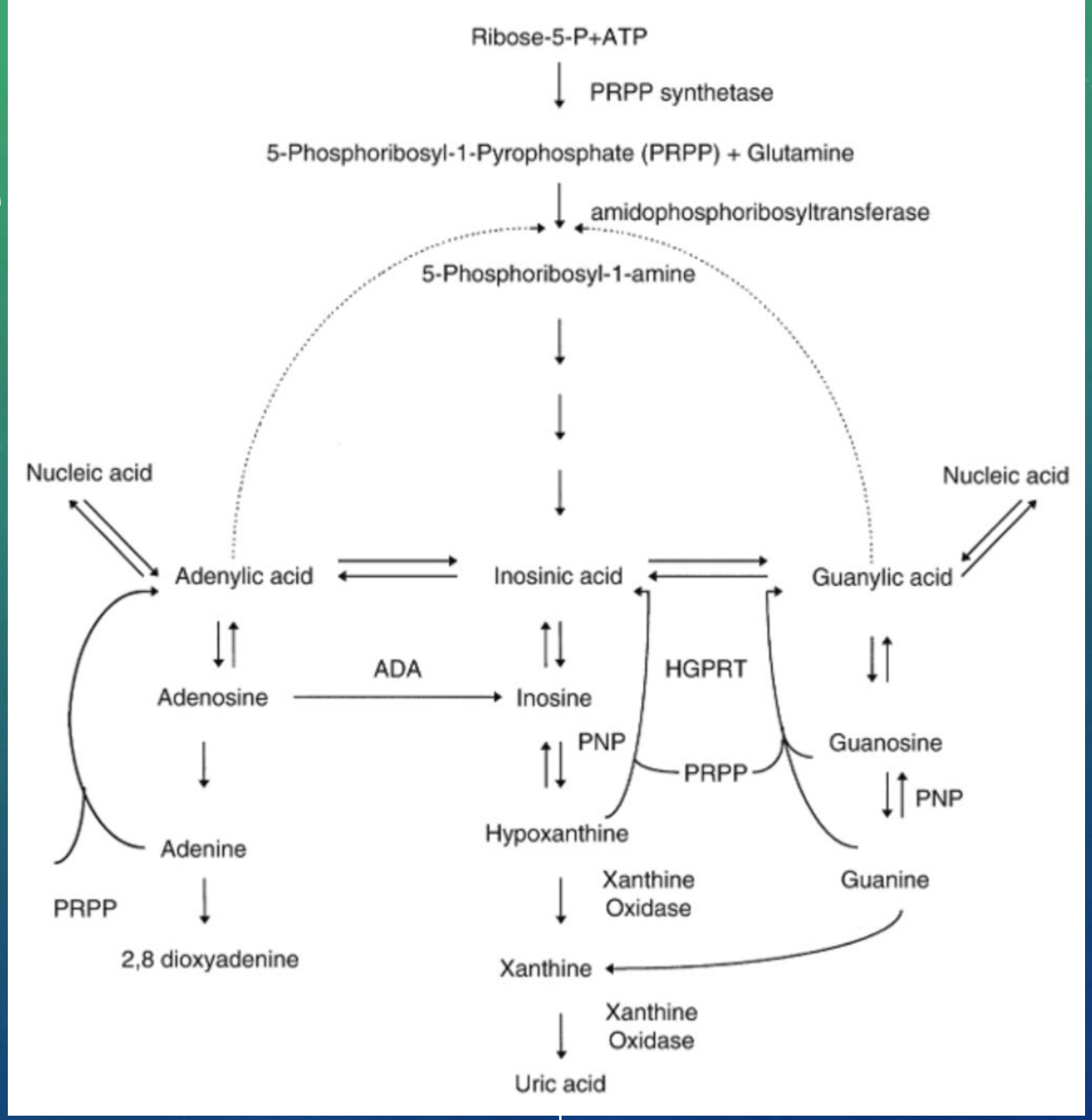
ARTHROPATHIES MICRO-CRISTALLINES

- Monosodium urate (MSU) (acide urique, urate)→ Goutte
- Calcium pyrophosphate dihydrate (CPPD)→ Pseudo-goutte
- Basic calcium phosphate (BCP)
  - Calcium hydroxyapatite (HA)
  - Octocalcium phosphate
  - Tricalcium phosphate

MONOSODIUM URATE (GOUTTE)



Goutte
Pathophysiologie



Adapté de: Rheumatology Secrets, 8th edition, 2015.

GOUTTE: PATHOPHYSIOLOGIE

Troubles myélo- et lymphoprolifératifs
Troubles hémolytiques
Chimiothérapie

Maladie rénale
Acidose

Collecte urinaire de 24 heures:
>800 mg = surproduction
<800 mg = sous-excrétion

Surproduction (10%)

PRPP synthetase overactivity
HGPRT partial deficiency (Kelley-Seegmiller)
HGPRT complete deficiency (Lesch-Nyhan)
G6PD deficiency (high ATP turnover)
F1P aldolase deficiency (high ATP turnover)

Sous-excrétion (90%)

Uromodulin-associated kidney disease
FJHN
MCKD types 1 and 2

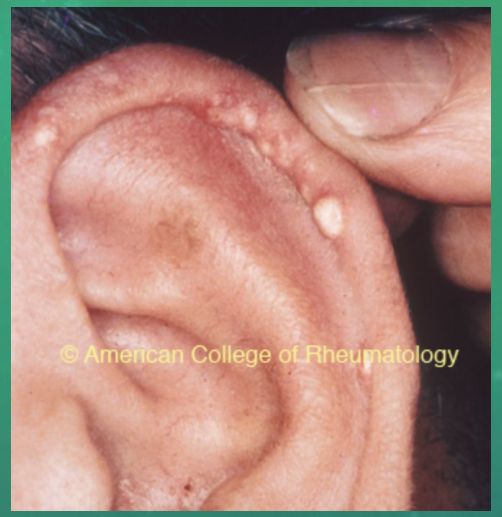
Myogenic glycogenoses (types III, V, VII) impairment
Systemic inflammatory conditions (including psoriasis)
Vasopressin-resistant diabetes insipidus
Bartter, Gitelman, Down syndromes

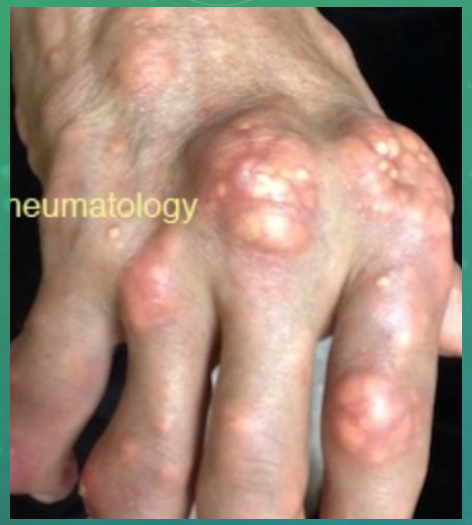
GOUTTE: TERMINOLOGIE/ÉPIDÉMIOLOGIE

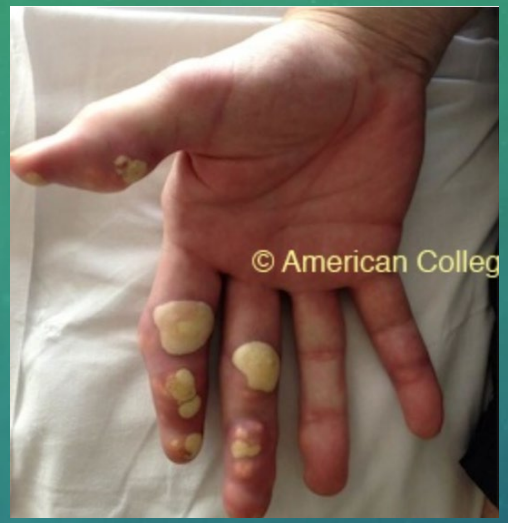
- Hyperuricémie >>> goutte clinique (15% des hyperuricémiques)
  - Hommes: >420 µmol/L (>7.0 mg/dL)
  - Femmes: >360 µmol/L (>6.0 mg/dL)
- Goutte aigüe
- Goutte chronique
- Goutte tophacée
- Néphropathie goutteuse
- Néphrolithiase d'acide urique
- >2% des hommes >30 ans et des femmes >50 ans; 9% des hommes et 6% des femmes >80 ans

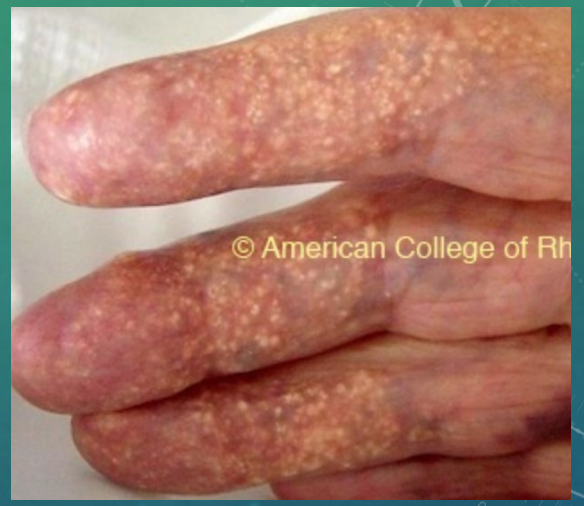
GOUTTE: PRÉSENTATION

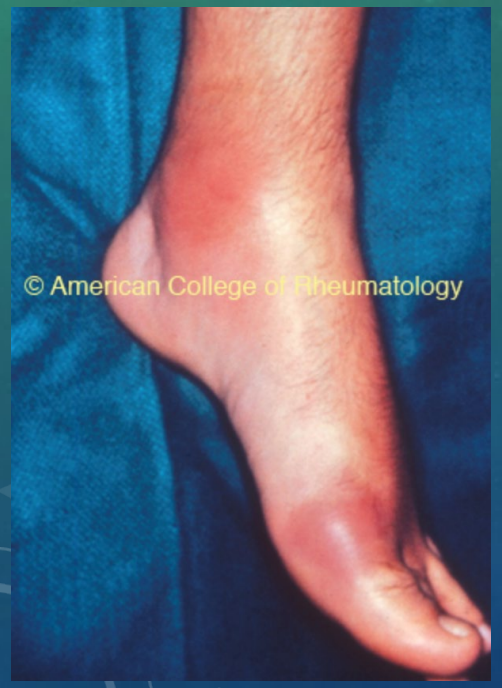
- Facteurs de risque d'une crise aiguë:
  - Introduction ou retrait soudain d'un traitement hypouricémiant
  - Alcool et/ou fruits de mer (lobster party)
  - Sepsis, infarctus du myocarde, maladie aiguë sévère (hospitalisation), trauma, chirurgie, déshydration, nutrition IV
- Attaque soudaine avec une ou plusieurs articulations enflées/chaudes/rouges/douloureuses (1re MTP (podagre), tarse, cheville, genou)
- Fièvre, frissons, sueurs
- Leucocytose, augmentation des paramètres inflammatoires
- Analyse du liquide synovial: liquide citrin trouble jusqu'à opaque ("purulent"), non visceux, >50 000 cellules/mm^3 à >100 000 cellules/mm^3 (pseudo-septique)



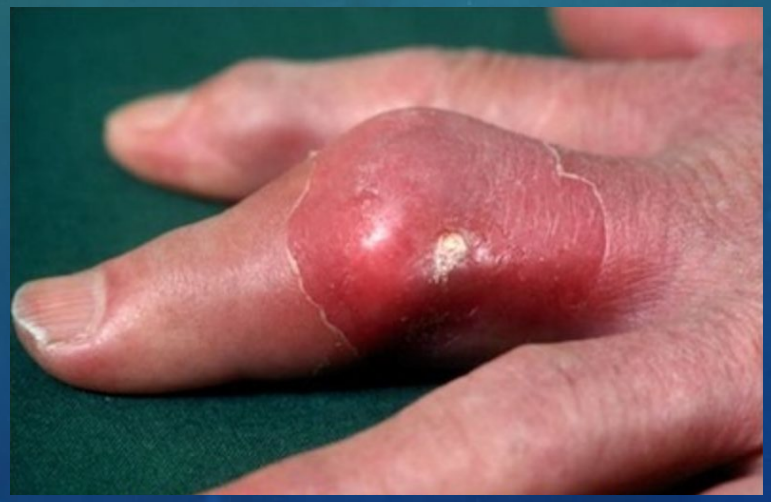








Goutte: maladie à multiples facettes



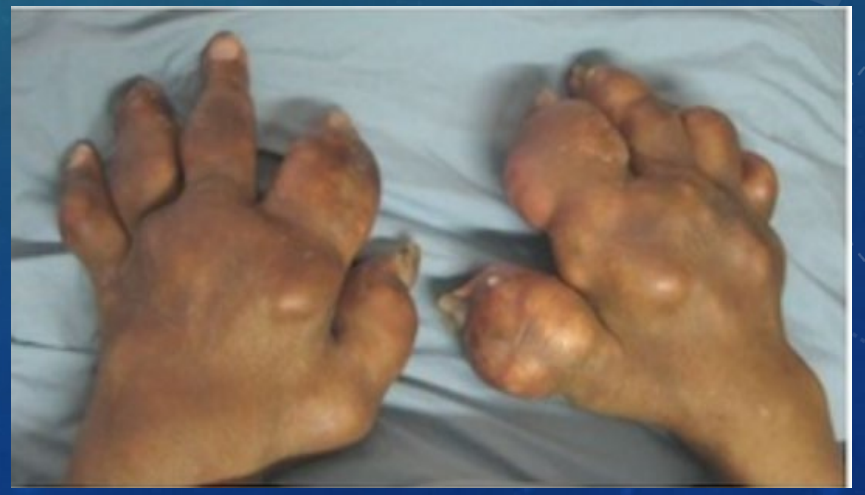


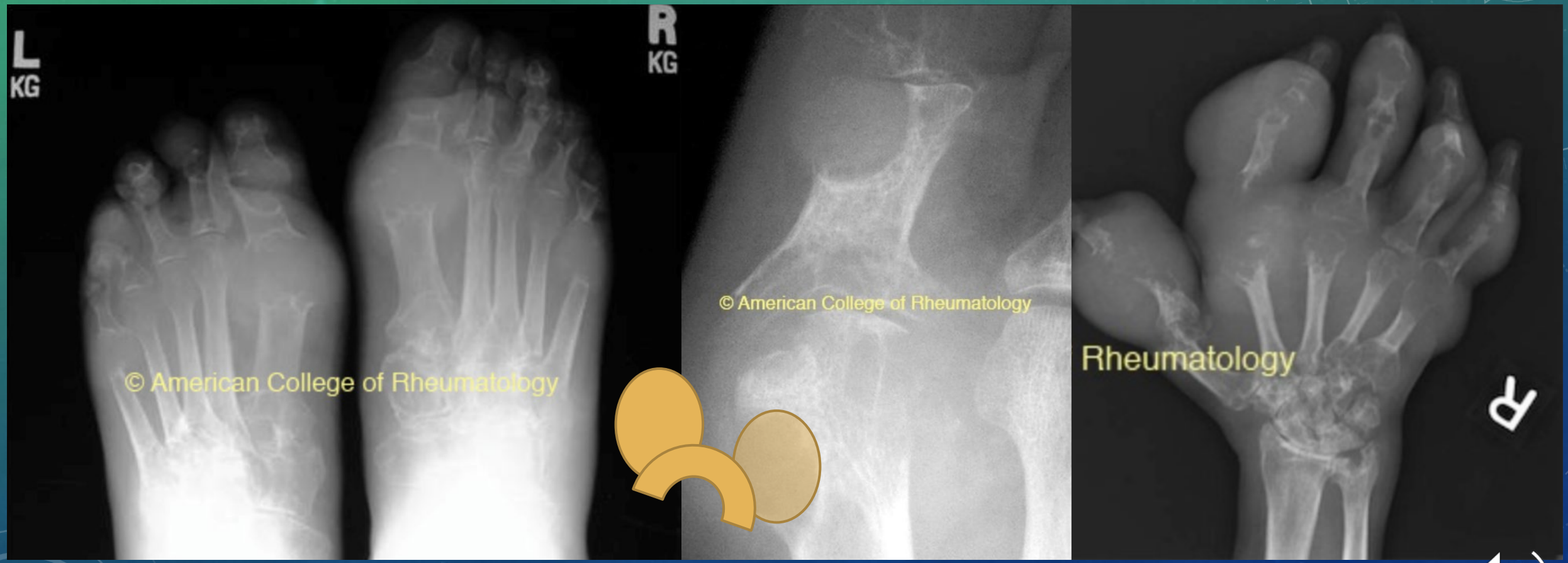
Table 2 The ACR/EULAR gout classification criteria*

	Categories	Score
Step 1: Entry criterion (only apply criteria below to those meeting this entry criterion)	At least 1 episode of swelling, pain, or tenderness in a peripheral joint or bursa	
Step 2: Sufficient criterion (if met, can classify as gout without applying criteria below)	Presence of MSU crystals in a symptomatic joint or bursa (ie, in synovial fluid) or tophus	
Step 3: Criteria (to be used if sufficient criterion not met)		
Clinical		
Pattern of joint/bursa involvement during symptomatic episode(s) ever	Ankle *or* mid-foot (as part of monoarticular or oligoarticular episode without involvement of the first metatarsophalangeal joint	1
	Involvement of the first metatarsophalangeal joint (as part of monoarticular or oligoarticular episode)	2
Characteristics of symptomatic episode(s) ever		
▶ Erythema overlying affected joint (patient-reported or physician-observed)	One characteristic	1
▶ Can't bear touch or pressure to affected joint	Two characteristics	2
▶ Great difficulty with walking or inability to use affected joint	Three characteristics	3
Time course of episode(s) ever		
Presence (ever) of ≥2, irrespective of anti-inflammatory treatment:		
▶ Time to maximal pain <24 h	One typical episode	1
▶ Resolution of symptoms in ≤14 days	Recurrent typical episodes	2
▶ Complete resolution (to baseline level) between symptomatic episodes		
Clinical evidence of tophus		
Draining or chalk-like subcutaneous nodule under transparent skin, often with overlying vascularity, located in typical locations: joints, ears, olecranon bursae, finger pads, tendons (eg, Achilles)	Present	4
Laboratory		
Serum urate: Measured by the uricase method. Ideally should be scored at a time when the patient was not receiving urate-lowering treatment and it was >4 weeks from the start of an episode (ie, during the intercritical period); *if* practicable, retest under those conditions. The highest value irrespective of timing should be scored	<4 mg/dL (<0.24 mmol/L)†	−4
	6–<8 mg/dL (0.36–<0.48 mmol/L)	2
	8–<10 mg/dL (0.48–<0.60 mmol/L)	3
	≥10 mg/dL (≥0.60 mmol/L)	4
Synovial fluid analysis of a symptomatic (ever) joint or bursa (should be assessed by a trained observer)‡	MSU negative	−2
Imaging§		
Imaging evidence of urate deposition in symptomatic (ever) joint or bursa: ultrasound evidence of double-contour sign¶ *or* DECT demonstrating urate deposition**	Present (either modality)	4
Imaging evidence of gout-related joint damage: conventional radiography of the hands and/or feet demonstrates at least 1 erosion††	Present	4

GOUTTE: DIAGNOSTIC

Ann Rheum Dis 2015;74:1789–98.

GOUTTE: MALADIE DESTRUCTIVE



Œdème des tissus mous
Densités calcifiées des tissus mous (tophus/tophi)
Érosions “punched out”, à bords sclérotiques, aux marges suspendues (Mickey Mouse ears)

GOUTTE: TRAITEMENT

- Parce que ce n’est pas une maladie bénigne
  - Douleurs aiguës et chroniques
  - Atteinte de la qualité de vie
  - Déformations
  - Perte de productivité/travail
  - Visites médicales urgentes
  - Hospitalisations
  - Prolongation d’hospitalisation
- Beaucoup de cas et en augmentation

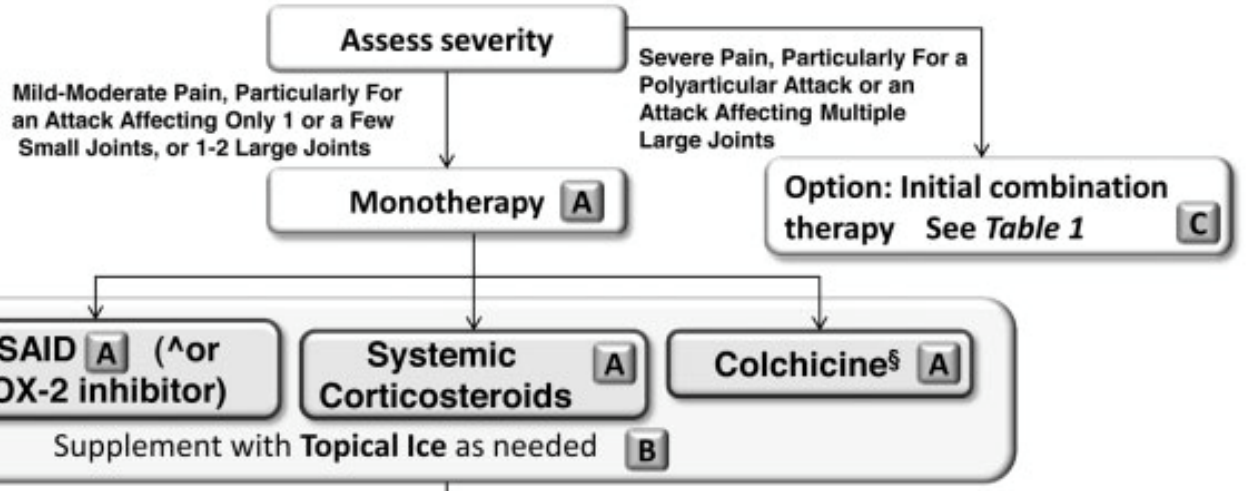
Arthritis Care Res 2016 Feb 11. Epub ahead of print.
Semin Arthritis Rheum. 2015;45:75-80.

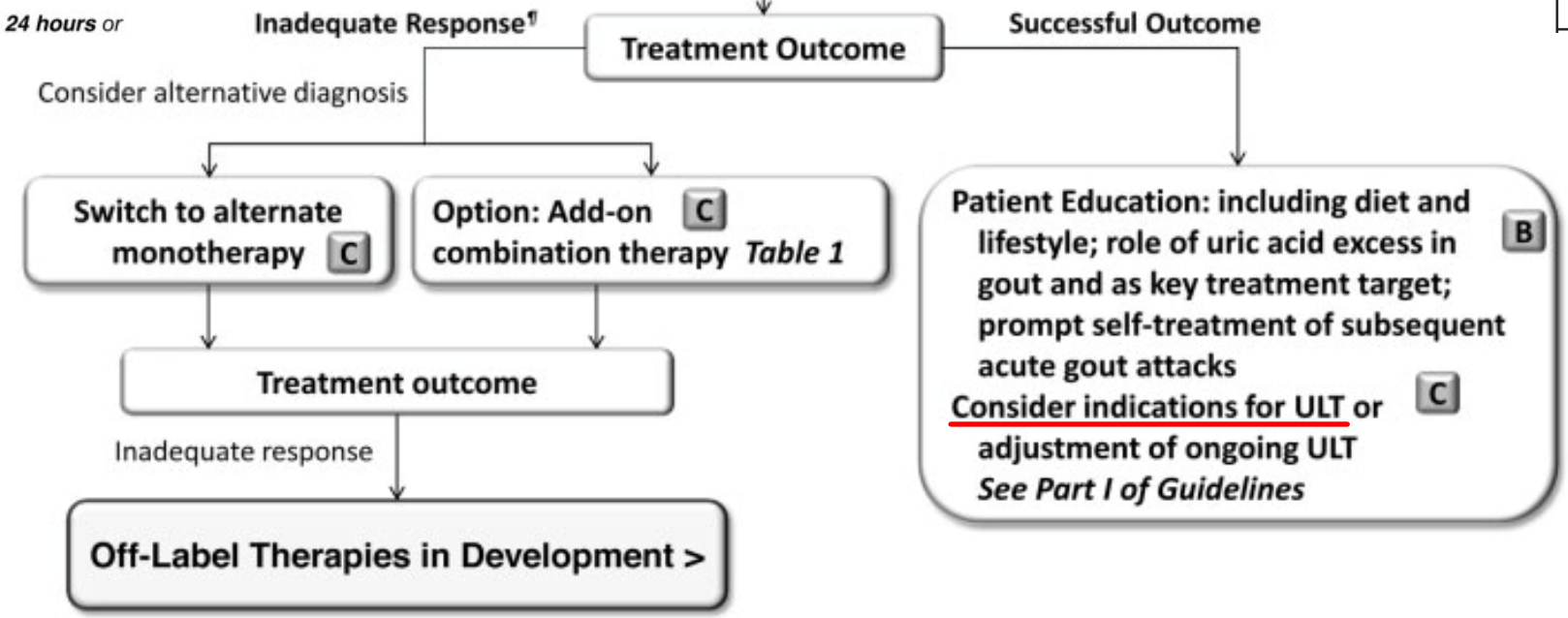
Goutte: Traitement de la crise aiguë

Management of an Acute Gout Attack

General Principles:

- Acute gouty arthritis attacks should be treated with pharmacologic therapy C #
- To provide optimal care, pharmacologic treatment should be initiated within 24 hours of acute gout attack onset C
- Ongoing pharmacologic ULT should not be interrupted during an acute gout attack C





¶ ***Inadequate response*** *is defined as*
< 20% *improvement in pain score within* ***24 hours*** *or*
<50% *at ≥* ***24 hours***

Table 1. Task force panel (TFP) recommendations for combination therapy approach to acute gouty arthritis

Initial combination therapy is an appropriate option for an acute, severe gout attack, particularly with involvement of multiple large joints or polyarticular arthritis (evidence C)
Acceptable combination therapy approaches include the initial simultaneous use of full doses (or, where appropriate, prophylaxis doses) of either: 1) colchicine and nonsteroidal antiinflammatory drugs (NSAIDs), 2) oral corticosteroids and colchicine, or 3) intra-articular steroids with all other modalities (evidence C)
For patients not responding adequately to initial pharmacologic monotherapy, adding a second appropriate agent is an acceptable option (evidence C)*
The TFP was not asked to vote on use of NSAIDs and systemic corticosteroids in combination, given core expert panel concerns about synergistic gastrointestinal tract toxicity

Arthritis Care Res 2012;64:1447–61.

Goutte: Traitement de la crise aiguë

NSAID or selective COX-2 inhibitor

Full FDA- or EMA-approved dose of NSAID or a Cox-2 inhibitor*

A # – C

↓

Continue initial treatment at full dose* until the gouty attack has completely resolved C

**Regulatory agency approved doses for acute pain and/or treatment of gout*

 # Naproxen, indomethacin, and sulindac are approved by the FDA for the treatment of acute gout, and other NSAIDs also are effective

Oral Colchicine

Is patient on prophylactic colchicine already?

Yes → **Has patient received acute gout regimen colchicine therapy in the last 14 days?**

No → **Oral Colchicine ^** B

1.2 mg, then 0.6 mg 1 hour later,
then gout attack prophylaxis dosing can be started, beginning 12 hrs or later, and continued until the acute gout attack resolves

(see 'Colchicine Gout Prophylaxis Dosing')

Has patient received acute gout regimen colchicine therapy in the last 14 days?

No → **Oral Colchicine ^** B

Yes → **Choose other therapy (NSAID or Corticosteroid)** B

^EULAR recommendations are for 0.5 mg colchicine orally three times daily when using colchicine to treat acute gout. The doses recommended, need to be adjusted down in the presence of significant drug interactions, and moderate to severe renal or hepatic impairment.

Corticosteroids

Extent of joint involvement

Option:1-2 large joints → **Consider intra-articular corticosteroids** B

Options: For all cases of gout

START INITIAL TREATMENT

Oral: Prednisone 0.5 mg/kg per day

DURATION OF Rx: 5-10 days at full dose then stop A

OR

for 2-5 days at full dose then taper for 7-10 days then stop C

Methylprednisolone Dose Pack, then follow-up treatment as Indicated C

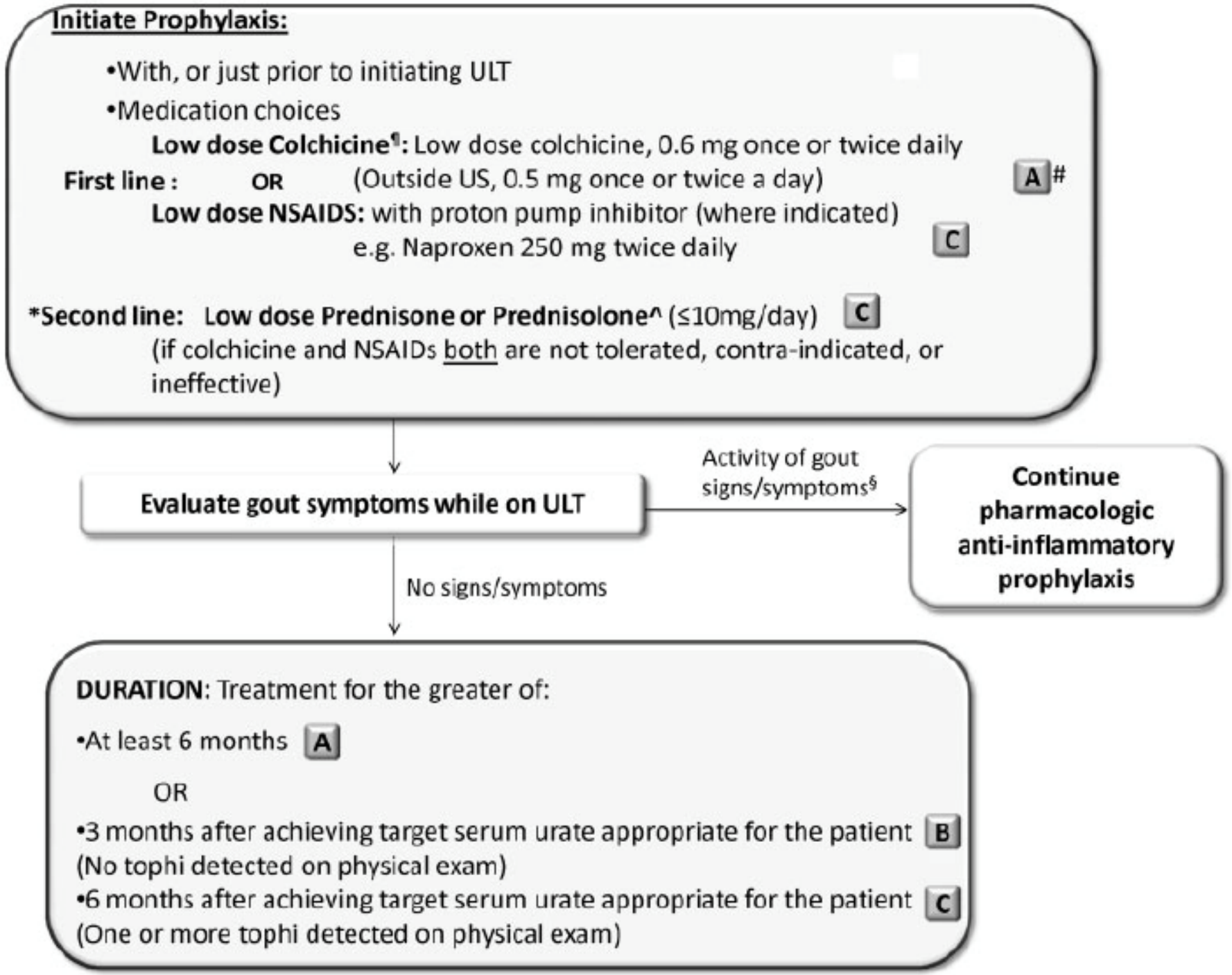
Intra-articular: Dose depends on joint size (with or without oral treatment) B

Intramuscular: Triamcinolone Acetonide 60 mg, then oral prednisone as above* C

** IM Triamcinolone acetonide monotherapy—lack of consensus*

Arthritis Care Res 2012;64:1447–61.

Transition

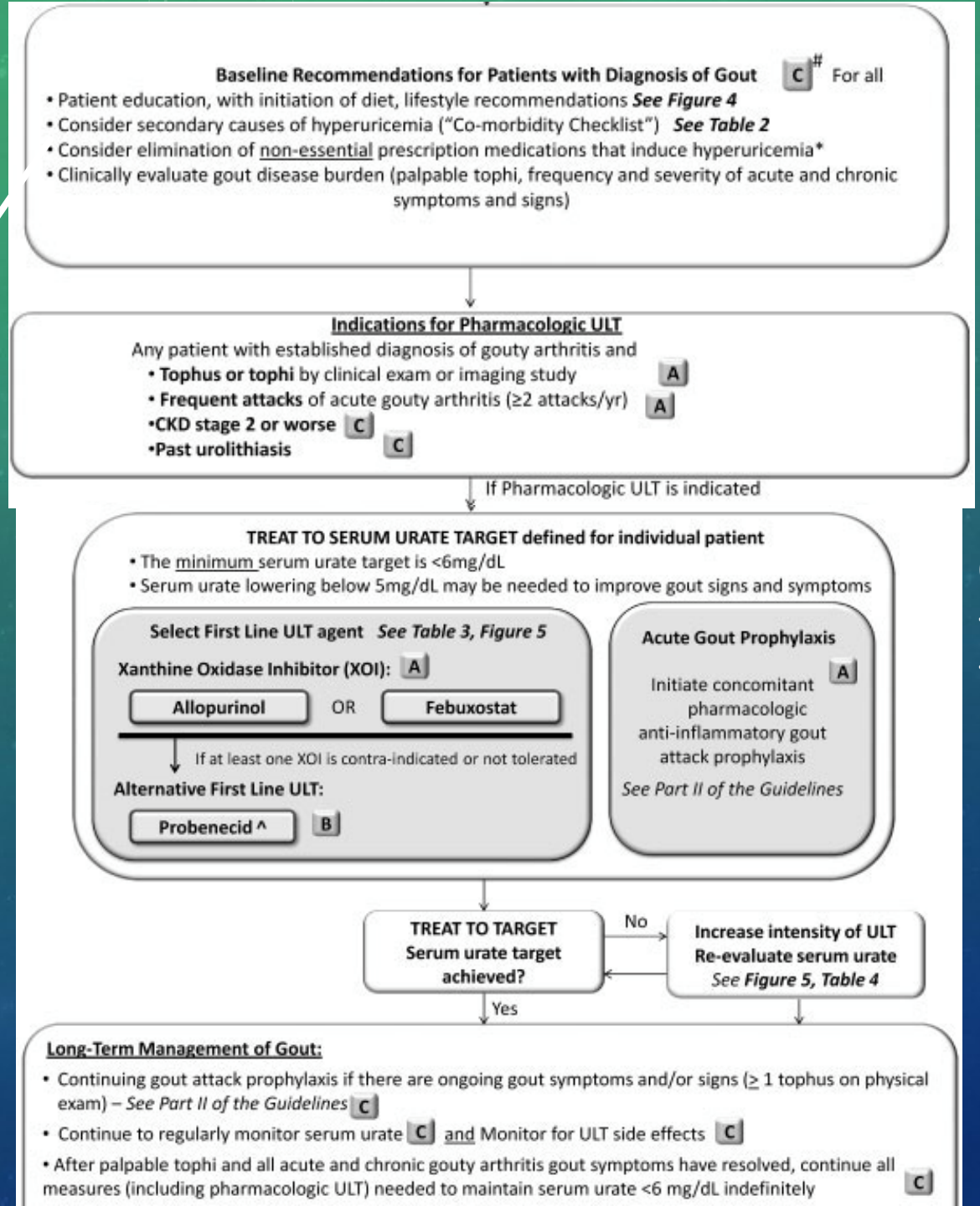


Pas avec:
Cyclosporine
Tacrolimus
Clarythromycin
Erythromycin

Arthritis Care Res 2012;64:1447–61.

Goutte: Traitement à long terme

Diurétiques de l'anse
Thiazides
Cyclosporine
Tacrolimus
Aspirine faible dose
Acide nicotinique
Ethambutol
Pyrazinamide



Maladie érosive
1 seule crise mais majeure

Cibles thérapeutiques:
<360 µmol/L (<6.0 mg/dL)
<300 µmol/L (<5.0 mg/dL) avec tophi

Arthritis Care Res 2012;64:1431–46.

Goutte: Traitement à long terme

Contribue seulement à 60 µmol/L (1.0 mg/dL)

Specific Recommendations:

GENERAL HEALTH, DIET, AND LIFESTYLE MEASURES FOR GOUT PATIENTS#:

Evidence Grades for Recommendations:
Level A: Supported by multiple (ie, more than one) randomized clinical trials or meta-analyses
Level B: Derived from a single randomized trial, or nonrandomized studies.
Level C: Consensus opinion of experts, case studies, or standard-of-care.

- **Weight loss for obese patients, to achieve BMI that promotes general health**
- **Healthy overall diet ^**
- **Exercise (Achieve physical fitness)**
- **Smoking cessation**
- **Stay well hydrated**

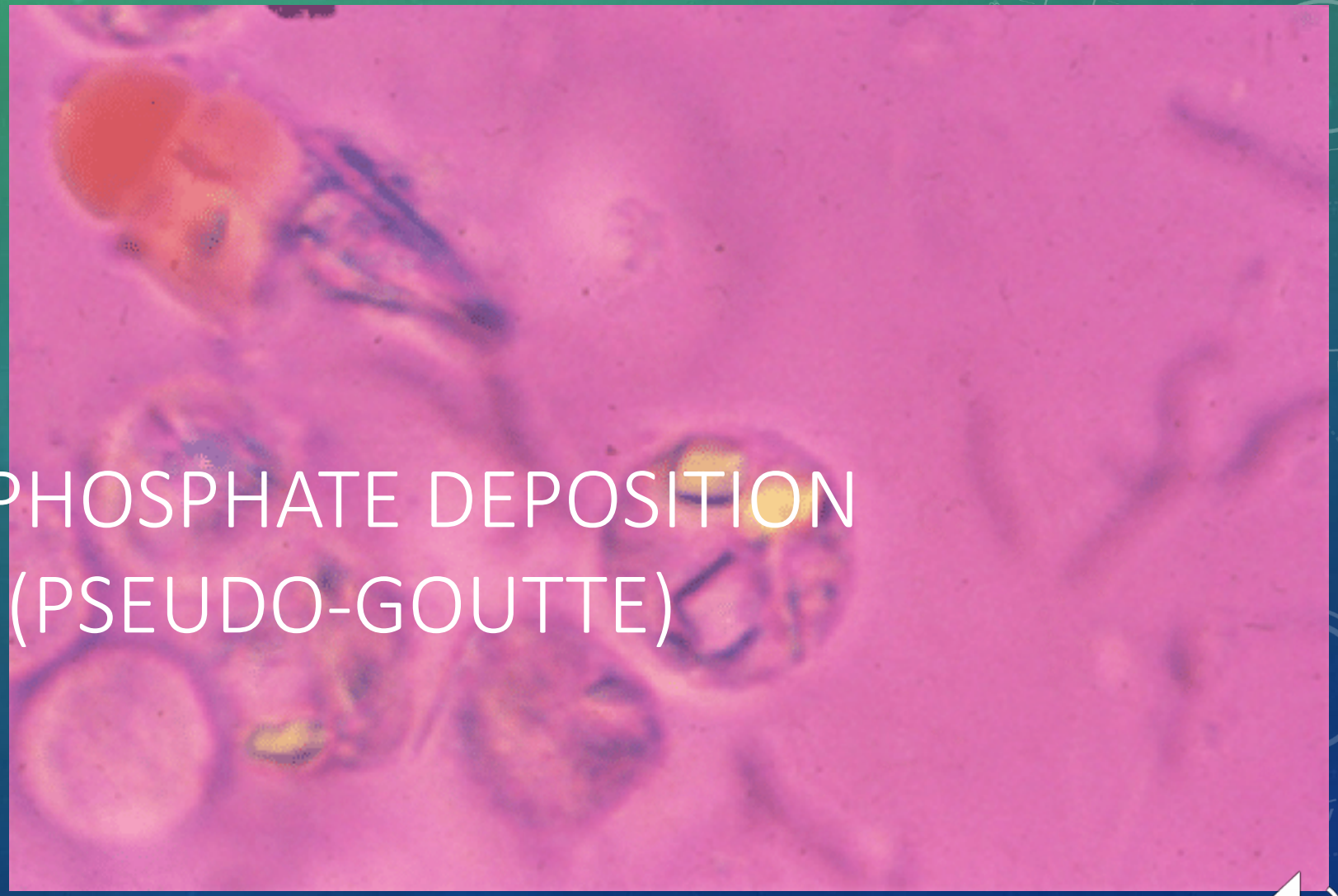
C

Avoid	Limit	Encourage >
• Organ meats high in purine content (eg, sweetbreads, liver, kidney) B	Serving Sizes of: • Beef, Lamb, Pork • Seafood with high purine content (eg, sardines, shellfish) B	• Low-fat or non-fat dairy products B
• High fructose corn syrup-sweetened sodas, other beverages, or foods C	• Servings of naturally sweet fruit juices • Table sugar, and sweetened beverages and desserts • Table salt, including in sauces and gravies C	• Vegetables • Legumes • Nuts • Vegetable proteins C
• Alcohol overuse (defined as more than 2 servings per day for a male and 1 serving per day for a female) in all gout patients B • Any alcohol use in gout during periods of frequent gout attacks, or advanced gout under poor control C	• Alcohol (particularly beer, but also wine and spirits) in all gout patients B	

^Without a specific task force panel (TFP) vote, adherence to diets for cardiac health and control of co-morbidities such as obesity, metabolic syndrome, diabetes, hyperlipidemia, and hypertension was stressed for gout patients, as appropriate.
> The TFP recommendation to "encourage" intake was not intended to advocate excesses in consumption of specific dietary items. There was a lack of TFP voting consensus on: Cherries and Cherry Products, Ascorbate (In Supplements or Foods), Nuts, Legumes. The TFP did not specifically vote on the question of limits on consumption of purine-rich vegetables and legumes.

Arthritis Care Res 2012;64:1431–46.

CALCIUM PYROPHOSPHATE DEPOSITION DISEASE - CPPD (PSEUDO-GOUTTE)

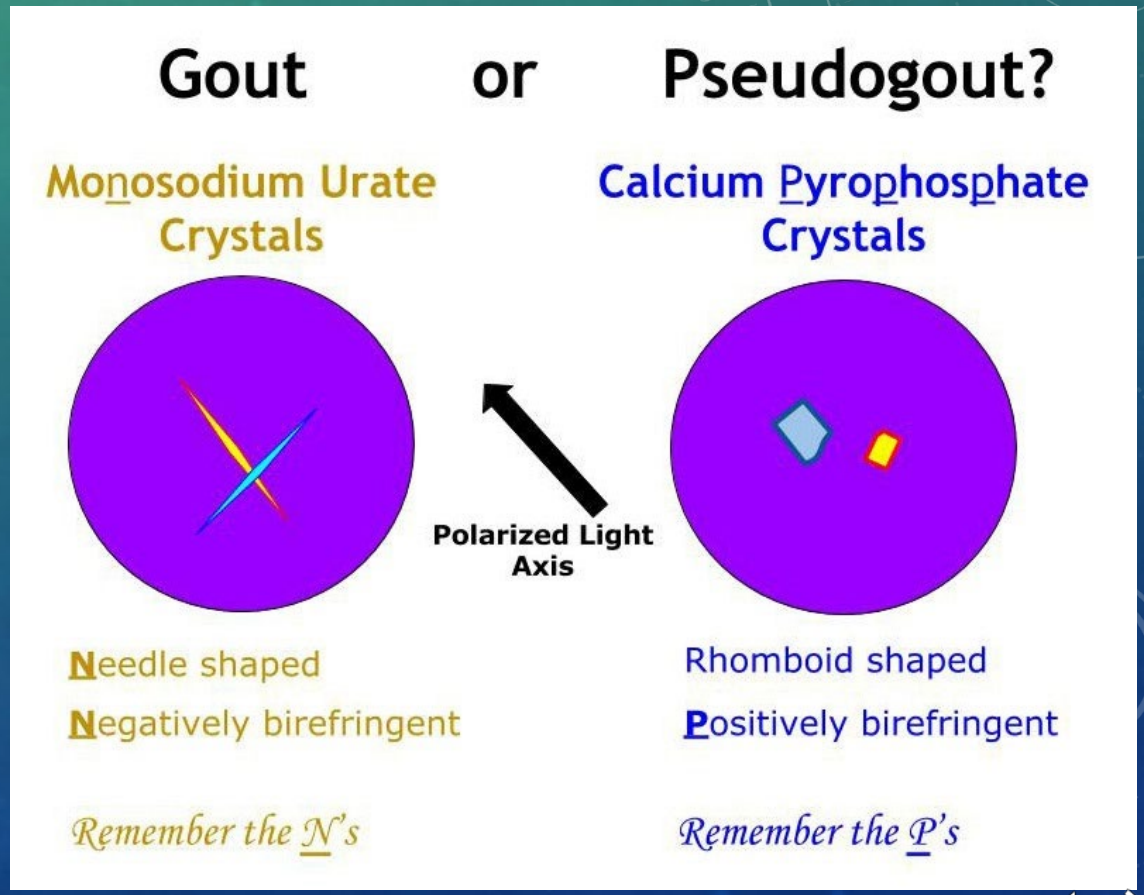


CPPD: TERMINOLOGIE/ÉPIDÉMIOLOGIE

- **Asymptomatique** (lanthanique): présence radiographique sans manifestation clinique (chondrocalcinose)
- **Aiguë** (pseudo-goutte): arthrite mono-/oligo-articulaire; genoux, poignets, chevilles
- **Chronique** (pseudo-rhumatoïde): arthrite polyarticulaire
- **Arthropathie à pyrophosphate** (pseudo-ostéoarthrose): OA associée à la CPPD; dans des articulations usuellement non atteintes par de l'O (MCPs, poignets, coudes)
- **Arthropathie tumorale** (pseudo-tophacée): accumulations périarticulaires
- **Dépôts tendineux** (pseudo-hydroxyapatithique): Achilles, triceps, obturateurs
- **Arthropathie destructive** (pseudo-neuropathique): Charcot-like
- **Sténose cervicale**: ligamentum flavum, ligament transverse de l'atlas
- **Syndrome de la dent couronnée (crowned dens syndrome)**: accumulation autour du processus odontoïde
- **Atteinte axiale** (pseudo-spondyloarthropathique): calcufications intervertébrales et des sacro-iliaques
- Rare avant 50 ans, 10-15% des 65-75 an, >85% des >80 ans

CPPD AIGUË: PRÉSENTATION

- Facteurs de risque de crise aiguë:
  - Sepsis, infarctus du myocarde, maladie aiguë sévère (hospitalisation), trauma, chirurgie, déshydration
- Attaque soudaine avec une ou plusieurs articulations enflées/chaudes/rouges/douloureuses (poignets, genoux, chevilles)
- Fièvre, frissons, sueurs
- Leucocytose, augmentation des paramètres inflammatoires
- Analyse du liquide synovial: liquide citrin trouble jusqu'à opaque ("purulent"), non visqueux, >50 000 cellules/mm^3 à >100 000 cellules/mm^3 (pseudo-septique)
- Recherche de causes associées: Créatinine, Ca, PO_4, Mg, phosphatase alcaline, Fe saturation

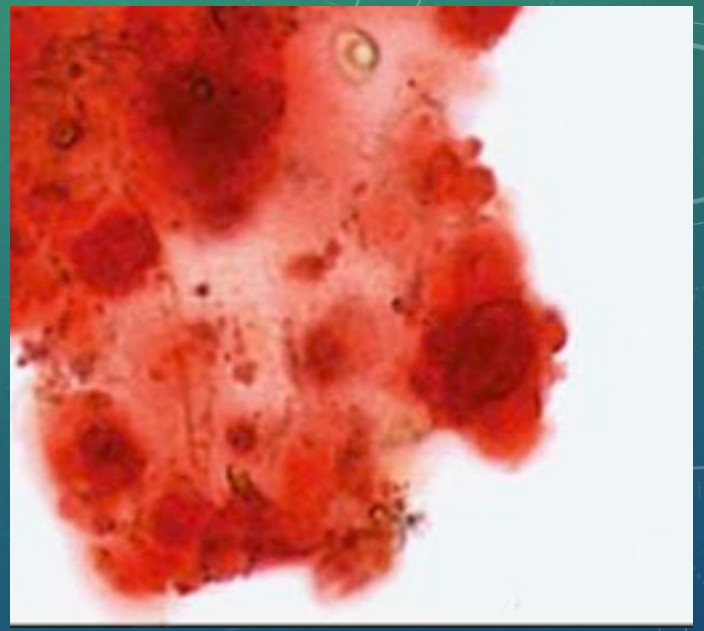


CPPD AIGUË: TRAITEMENT

Table 2 LOE and SOR: order according to topic (general, acute attacks, prophylaxis and chronic CPPD management)

No	Proposition	LOE	SOR(95% CI)
1	Optimal treatment of CPPD requires both non-pharmacological and pharmacological modalities and should be tailored according to: Clinical features (isolated CC, acute, chronic CPP crystal inflammatory arthritis, OA with CPPD) General risk factors (age, comorbidities) The presence of a predisposing metabolic disorder	IV	93 (85 to 100)
2	For acute CPP crystal arthritis, optimal and safe treatment comprises application of ice or cool packs, temporary rest, joint aspiration and intra-articular injection of long-acting GCS. For many patients these approaches alone may be sufficient	IIa–IV	95 (92 to 98)
3	Both oral NSAID (with gastroprotective treatment if indicated) and low-dose oral colchicine (eg, 0.5 mg up to 3–4 times a day with or without an initial dose of 1 mg) are effective systemic treatments for acute CPP crystal arthritis, although their use is often limited by toxicity and comorbidity, especially in the older patient	Ib–IIb	79 (66 to 91)
4	A short tapering course of oral GCS, or parenteral GCS or ACTH, may be effective for acute CPP crystal arthritis that is not amenable to intra-articular GCS injection and are alternatives to colchicine and/or NSAID	IIb–III	87 (76 to 97)
5	Prophylaxis against frequent recurrent acute CPP crystal arthritis can be achieved with low-dose oral colchicine (eg, 0.5–1 mg daily) or low-dose oral NSAID (with gastroprotective treatment if indicated)	IIb–IV	81 (70 to 92)
6	The management objectives and treatment options for patients with OA and CPPD are the same as those for OA without CPPD	Ia	84 (74 to 94)
7	For chronic CPP crystal inflammatory arthritis, pharmacological options in order of preference are oral NSAID (plus gastroprotective treatment if indicated) and/or colchicine (0.5–1.0 mg daily), low-dose corticosteroid, methotrexate and hydroxychloroquine	Ib–IV	79 (67 to 91)
8	If detected, associated conditions such as hyperparathyroidism, haemochromatosis or hypomagnesaemia should be treated	Ib	89 (81 to 98)
9	Currently, no treatment modifies CPP crystal formation or dissolution and no treatment is required for asymptomatic CC	IV	90 (83 to 97)

Ann Rheum Dis 2011;70:571–5.



HYDROXYAPATITE DEPOSITION DISEASE - HADD

HADD: TERMINOLOGIE

- Périarthrite: capsules articulaires (pseudo-podagre), tendons (coiffe des rotateurs, longus colli), bourse
- Arthropathie: asymptomatique, aiguë (crown dens syndrome), destructive (épaule de Milwaukee), ostéoarthrose
- Tissus mous:
  - Calcinose: connectivites
  - Calcifications métastatiques: insuffisance rénale
  - Calcinose tumorale

HADD: PRÉSENTATION

- Attaque soudaine avec une ou plusieurs articulations enflées/chaudes/rouges/douloureuses ou autour d'un tendon
- Fièvre, frissons, sueurs
- Leucocytose, augmentation des paramètres inflammatoires
- Analyse du liquide synovial: liquide citrin trouble jusqu'à opaque ("purulent"), non visqueux, souvent sanguinolent, >50 000 cellules/mm^3 à >100 000 cellules/mm^3 (pseudo-septique)

HADD: DIAGNOSTIC ET TRAITEMENT

- Diagnostic
  - Liquide synovial: coloration au rouge Alizarin en cytologie
  - Radiographie peut montrer des calcifications des tissus mous
- Traitement: essentiellement le même que pour les crises aiguës de goutte/pseudo-goutte