Psoriatic Arthritis: Disease State

Module 3

Diagnosis, Classification, and Risk Factors of PsA

PsA=Psoriatic Arthritis.

How Is PsA Diagnosed?

PsA=Psoriatic Arthritis.

Diagnosis of PsA

There are no diagnostic tests; most often, it is a clinical diagnosis[1]

Joints are assessed in a manner similar to that in rheumatoid arthritis[2]

Most patients do not demonstrate the presence of serological markers (ie, are seronegative)[1]

In clinical trials, the CASPAR criteria may be used to classify PsA[1]

Detailed patient history, physical examination, laboratory findings, and imaging results are highly important[1]

Imaging studies (ultrasonography and MRI) allow more precise visualization of joint damage and tissue inflammation[1]

CASPAR=Classification Criteria for Psoriatic Arthritis; MRI=Magnetic Resonance Imaging; PsA=Psoriatic Arthritis.

1. FitzGerald O, et al. *Nat Rev Dis Primers.* 2021;7(1):59. 2. Rida MA, Chandran V. *Clin Immunol.* 2020;214:108390.

Differential Diagnosis of PsA

Clinical, Laboratory, and Radiographic Features That Distinguish PsA From RA and OA[1,2]

Feature	PsA	RA	OA
Inflammatory arthritis	Very common	Very common	Occasional
Peripheral involvement	Very common	Very common	Very common
Axial involvement (sacroiliac joint[a], spine)	Common	No	No
Symmetrical involvement	Occasional	Common	Common
DIP joint involvement	Common	Rare	Common
Enthesitis	Common	Rare	No
Dactylitis	Common	No	No
Bone erosion[a]	Common	Very common	Occasional[b]
New bone formation[a]	Common	Rare	Common
Skin involvement	Very common	Rare	Rare
RF positive	Occasional	Very common	Rare
aCCP positive	Rare	Very common	Rare
Nail dystrophy	Very common	No	No

[a]In disease of >2 years duration; [b]Inflammatory OA may manifest as focal erosion and new bone formation. Very common=60–90%; Common=30-60%; Occasional=10–30%; Rare <10%; No=Not found.
aCCP=Anti-cyclic Citrullinated Peptide; DIP=Distal Interphalangeal; OA=Osteoarthritis; PsA=Psoriatic Arthritis; RA=Rheumatoid Arthritis; RF=Rheumatoid Factor.
1. FitzGerald O, et al. *Nat Rev Dis Primers.* 2021;7(1):59. 2. Rida MA, Chandran V. *Clin Immunol.* 2020;214:108390

CASPAR: Classification Criteria for Psoriatic Arthritis

- To be classified as having PsA, a patient should have inflammatory articular disease (joint, spine, or entheseal) with a score of ≥3 points from the 5 categories listed in the following table[1,2]

Criterion[1,2]	Description[1]
1. Evidence of psoriasis (one of a, b, or c; a maximum of 2 points for this criterion)	
a) Current psoriasis[a] (2 points)	Psoriatic skin or scalp disease present currently, as is judged by a rheumatologist or dermatologist
b) Personal history of psoriasis (1 point)	A history of psoriasis obtained from the patient, family physician, dermatologist, rheumatologist, or other qualified healthcare professional
c) Family history of psoriasis (1 point)	A history of psoriasis in a first- or second-degree relative per the patient
2. Psoriatic nail dystrophy (1 point)	Typical psoriatic nail dystrophy, including onycholysis, pitting, and hyperkeratosis, as observed during current physical examination
3. Negative test result for RF (1 point)	By any method except latex, but preferably by ELISA or nephelometry, according to the local laboratory reference range
4. Dactylitis (one of a, b; 1 point)	
a) Current	Swelling of an entire digit
b) History	A history of dactylitis recorded by a rheumatologist
5. Radiologic evidence of juxta-articular new bone formation (1 point)	Ill-defined ossifications near joint margins (excluding osteophyte formation) on plain X-ray films of hand or foot

[a]Current psoriasis is assigned a score of 2, and all other items a score of 1.
CASPAR=Classification Criteria for Psoriatic Arthritis; ELISA=Enzyme-Linked Immunosorbent Assay; PsA=Psoriatic Arthritis; RF=Rheumatoid Factor.
1. Taylor W, et al. *Arthritis Rheum.* 2006;54(8):2665-2673. 2. Raychaudhuri SP, et al. *J Autoimmun.* 2017;76:21-37.

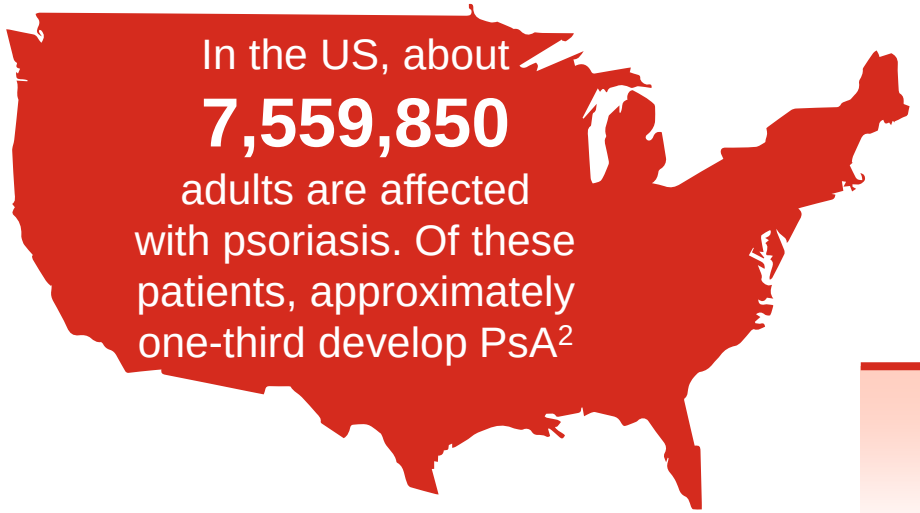
Who Develops PsA, and What Are the Risk Factors for the Disease?

PsA=Psoriatic Arthritis.

Incidence and Prevalence of PsA

- In the United States, the overall incidence of PsA in patients with newly diagnosed PsO is 2.9 (95% CI, 2.9-3.0) events per 100 PY[1]
- The prevalence of PsA in patients with[1]
  - Mild PsO was 2.1 (95% CI, 2.1-2.1) events per 100 PY
  - Moderate PsO was 9.9 (95% CI, 9.5-10.4) events per 100 PY
  - Severe PsO was 17.6 (95% CI, 16.9-18.3) events per 100 PY
- About 20-30% of patients with psoriasis have PsA, and the prevalence estimates range widely, from 7% to 40%[1]

In the United Kingdom, PsA may affect 0.19% people. In patients with psoriasis, this prevalence increases to ~10%[3]



In Japan, among 429,679 patients with psoriasis, 1.9% had PsA[4]

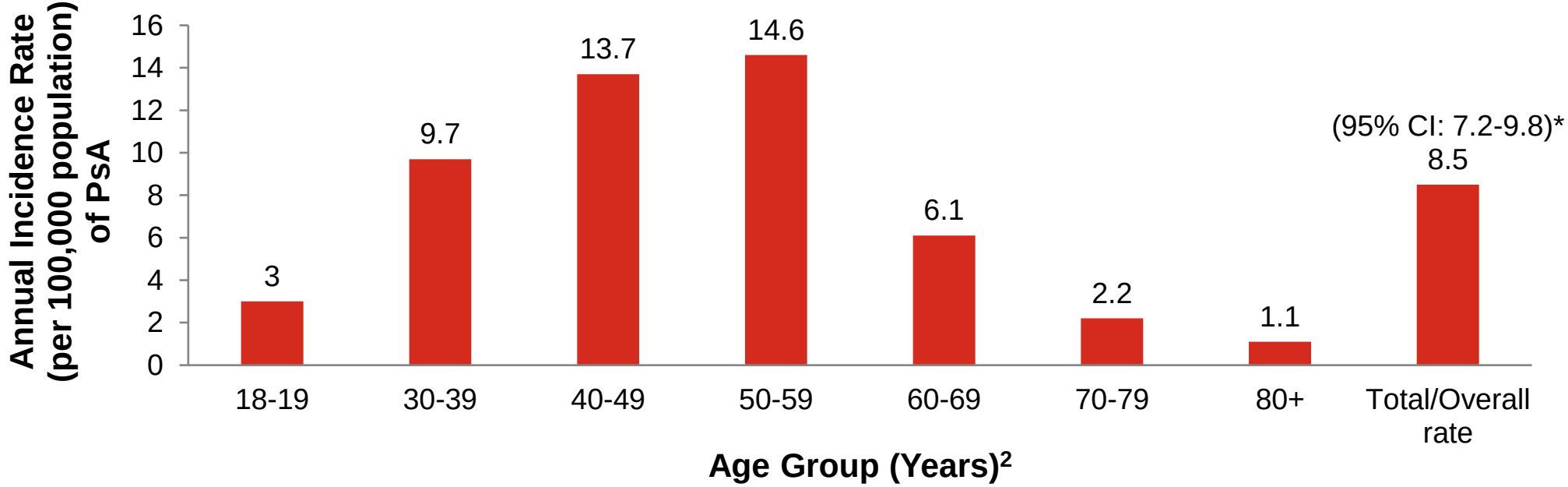
CI=Confidence Interval; PsA=Psoriatic Arthritis; PsO=Psoriasis; PY=Patient Years; US=United States.

1. Merola JF, et al. *J Am Acad Dermatol.* 2022;86(4):748-757. 2. Armstrong AW, et al. *JAMA Dermatol.* 2021;157(8):940-946. 3. Dures E, et al. *Patient.* 2017;10(4):455-462. 4. Inui K, et al. Modern Rheumatology. 2021;31(6):1179–1191.

Age at Onset

- The onset of PsA usually occurs in patients in their 30s and 40s (highest incidence is noted in those aged 40-59 years), and the prevalence is almost equal in men and women[1,2]
- Median age at diagnosis is 44.8 years (interquartile range: 34.7-55.8 years)[3]

Annual incidence rate of PsA by age in Olmsted County, in the US state of Minnesota[2]

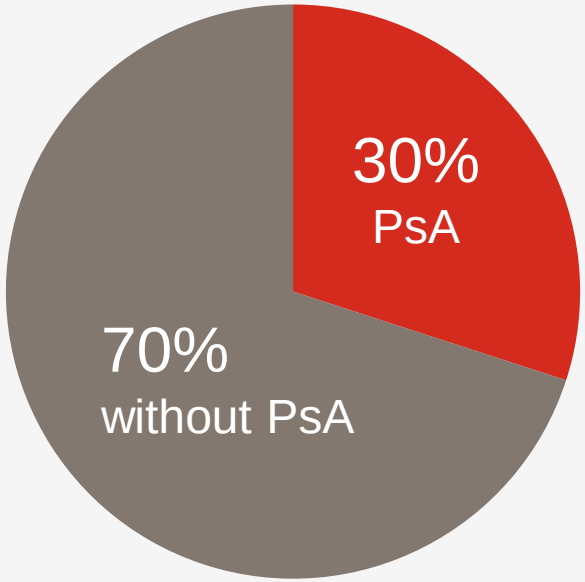


*Age- and sex-adjusted to the 2010 White population in the US.
CI=Confidence Interval; PsA=Psoriatic Arthritis.

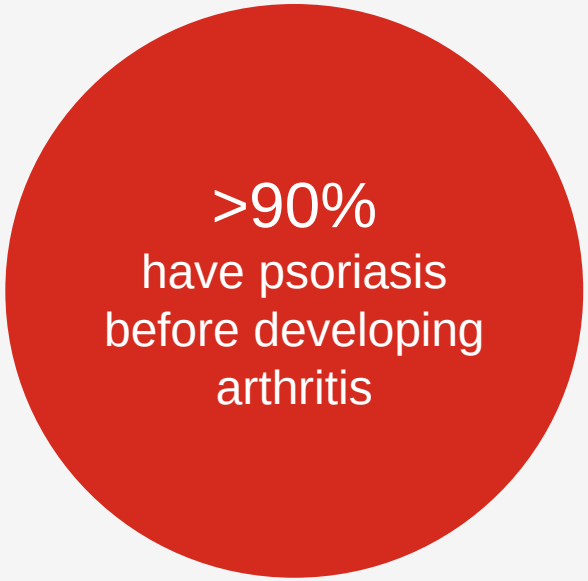
1. Tiwari V, Brent LH. Psoriatic Arthritis. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2022. https://www.ncbi.nlm.nih.gov/books/NBK547710/ (Accessed September 13, 2022).
2. Karmacharya P, et al. *Arthritis Rheumatol.* 2021;73(10):1878-1885. 3. Ogdie A, et al. *Rheumatology (Oxford).* 2013;52(3):568-575.

Psoriasis and PsA

- Although the association between psoriasis and arthritis was first described in 1818, PsA was officially recognized as a distinct disorder by the American Rheumatism Association only in 1964[1]



Patients with psoriasis[1]



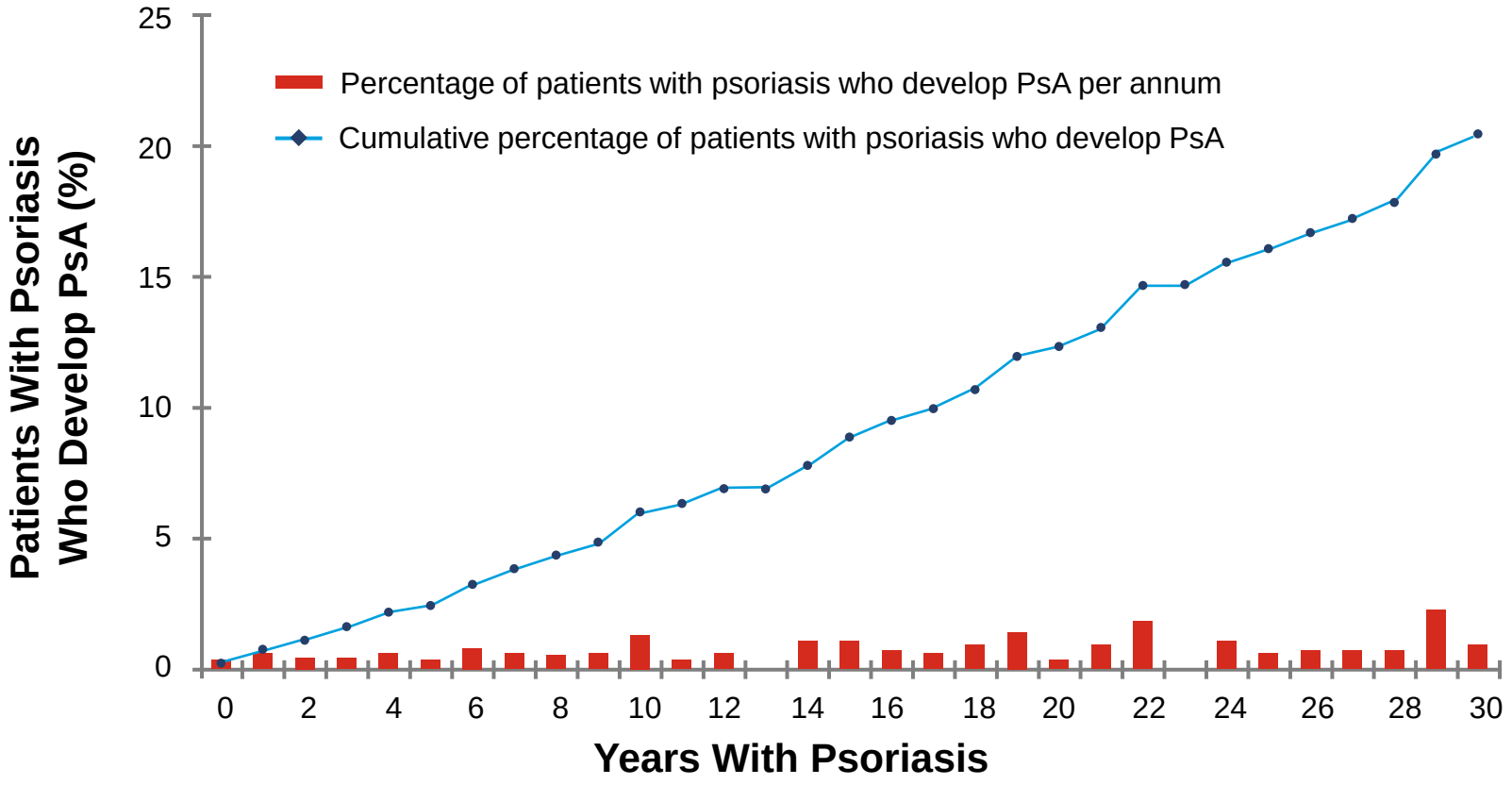
Patients with PsA[2]

PsA=Psoriatic Arthritis.

1. Dogra S, Mahajan R. *Indian Dermatol Online J.* 2016;7(6):471-480. 2. Pennington SR, et al. *Front Med (Lausanne).* 2021;8:723944.

Development of PsA in Relation to Psoriasis

Incidence and cumulative prevalence of PsA over time in population of patients with psoriasis



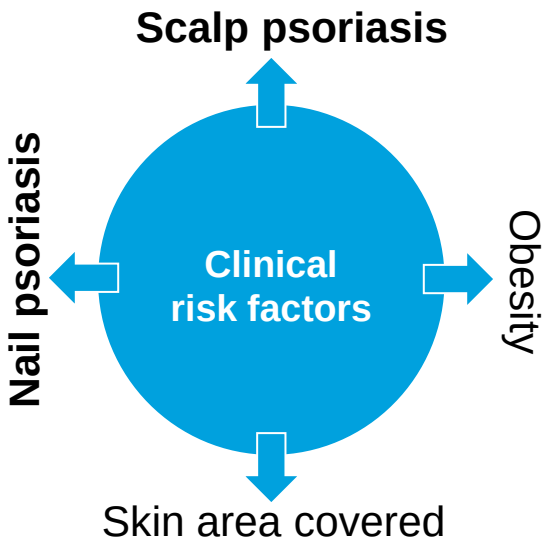
- During the 30 years of examination, incidence of PsA in the population of patients with psoriasis remained relatively constant, largely below 1% per year (74 per 1000 person-years)
- Among patients with a 30-year history of psoriasis, the prevalence of PsA increased steadily with disease duration reaching 20.5%

PsA=Psoriatic Arthritis.

Christophers E, et al. *J Eur Acad Dermatol Venereol.* 2010;24(5):548-554.

Clinical Risk Factors for PsA

- Risk factors for PsA development include involvement of nail and scalp psoriasis



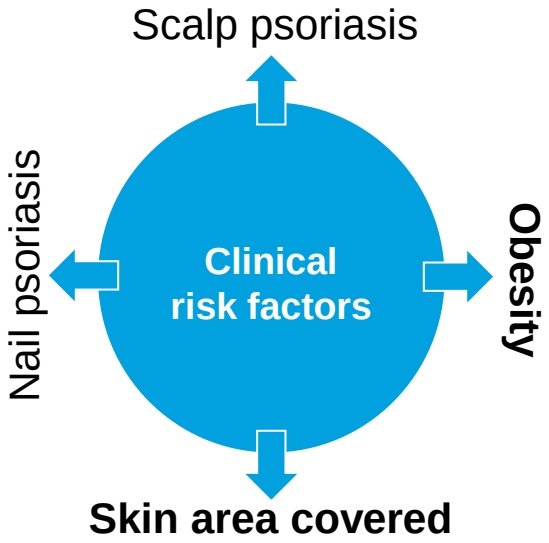
Nail Psoriasis

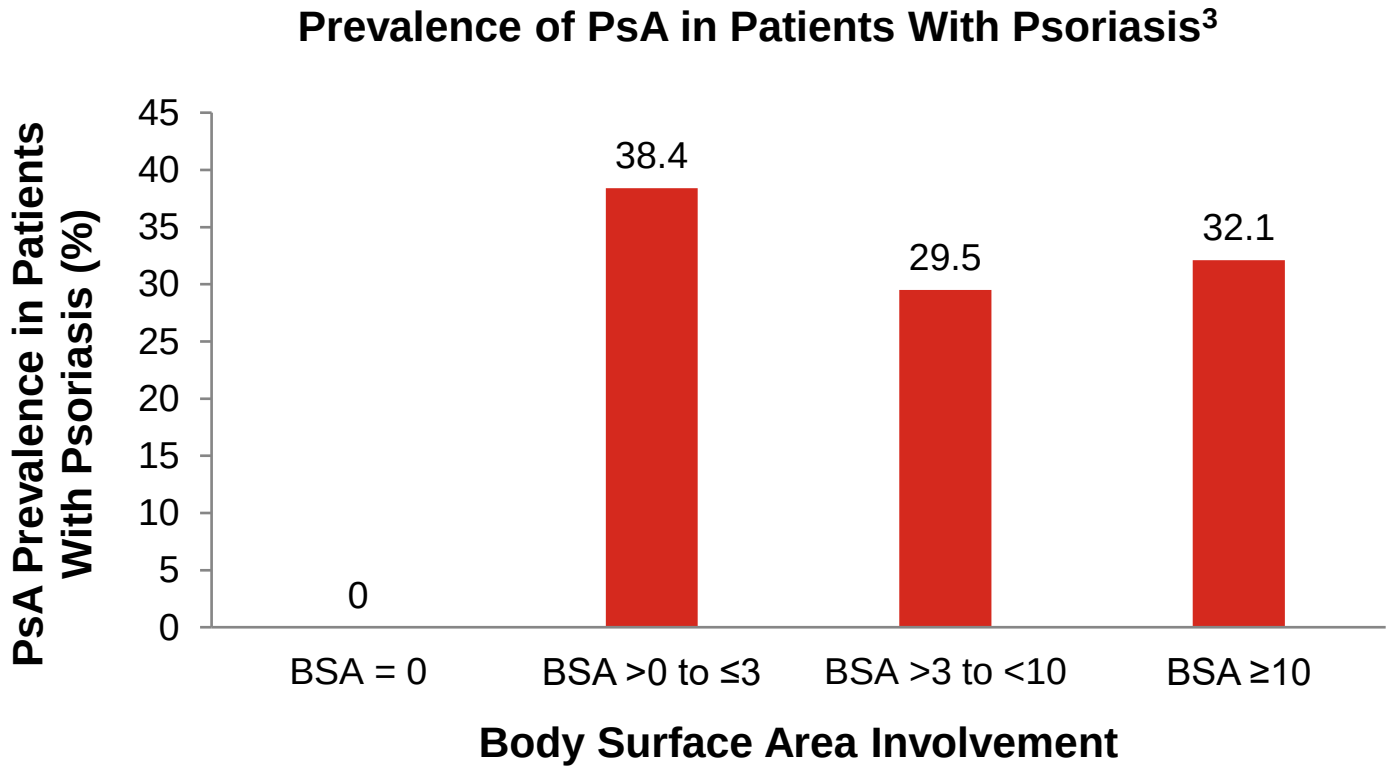
Scalp Psoriasis

PsA=Psoriatic Arthritis.
Ogdie A, Gelfand JM. *Curr Rheumatol Rep.* 2015;17(10):64.

Clinical Risk Factors for PsA

- Greater involvement of skin and obesity in patients with psoriasis increases the risk for PsA[1]
- Obesity is more common in patients with psoriasis (36.5% vs. 22%; OR 2.1, 95% CI: 1.5-2.8, *p*<.01) and PsA (27.6% vs. 22%; OR 1.4, 95% CI: 1.0-1.9, *p*<.05) compared to non-inflammatory population[2]



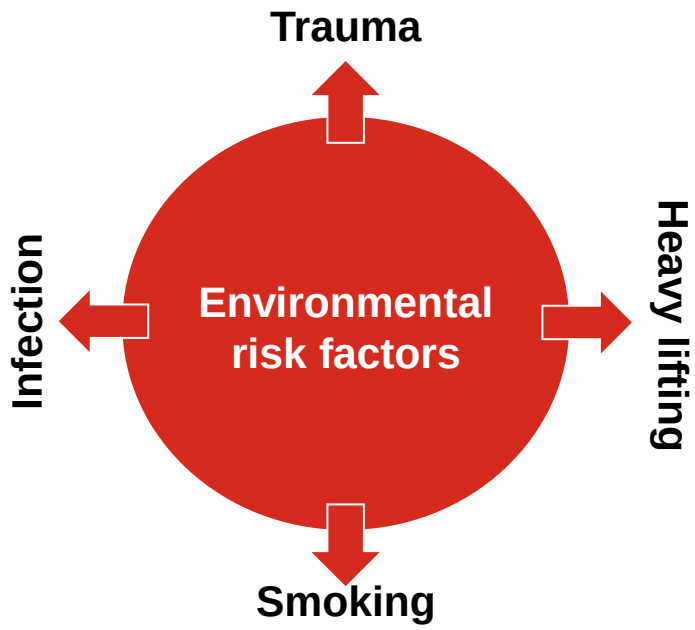


BSA=Body Surface Area; CI=Confidence Interval; OR=Odds Ratio; PsA=Psoriatic Arthritis.

1. Ogdie A, Gelfand JM. *Curr Rheumatol Rep*. 2015;17(10):64. 2. Queiro R, et al. *Medicine (Baltimore)*. 2019;98(28):e16400. 3. Tillett W, et al. *Rheumatol Ther*. 2020;7(3):617-637.

Environmental Risk Factors for PsA

- Infection, injury, smoking, and trauma may also increase the risk for development of PsA in patients with psoriasis[1,2]
- The following factors are associated with the onset of PsA
  - Infection[1]
  - Injury and heavy lifting[1]
  - Smoking (increases the risk and leads to worse clinical outcomes)[1]
  - Recent trauma (observed IR: 23.8 [95% CI: 22.3-25.3] per 10,000 patient-years)

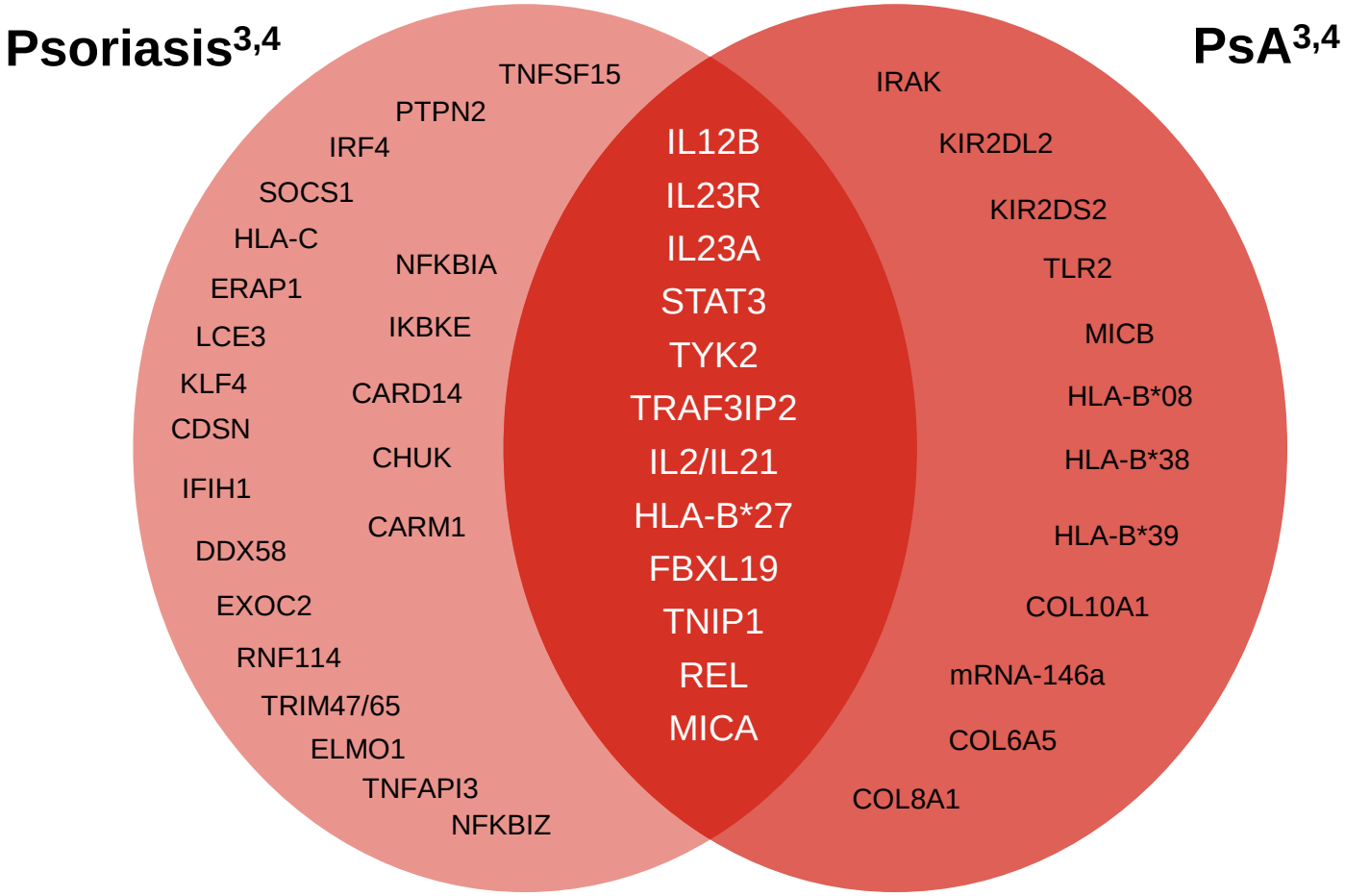


CI=Confidence Interval; IR=Incidence Rate; PsA=Psoriatic Arthritis.

1. Ogdie A, Gelfand JM. *Curr Rheumatol Rep*. 2015;17(10):64. 2. Thorarensen SM, et al. *Ann Rheum Dis.* 2017;76(3):521-525.

Genetic Risk Factors

- PsA prevalence is 49 times more likely among first-degree relatives of patients with PsA than that in the general population[1]
- Class I HLA genes are highly associated with PsA and account for ~30% of the genetic susceptibility[2]

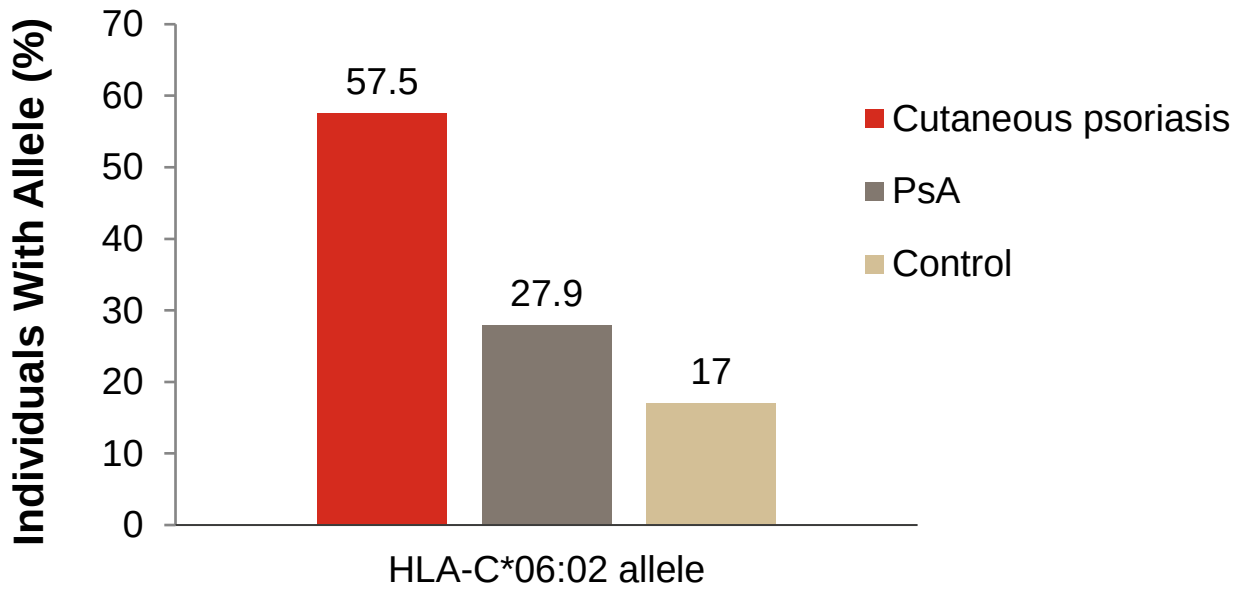


HLA=Human Leukocyte Antigen; PsA=Psoriatic Arthritis.

1. Giannelli A. *Rheumatol Ther.* 2019;6(1):5-21. 2. de Vlam K, et al. *Acta Derm Venereol.* 2014;94(6):627-634. 3. Dand N, et al. *Acta Derm Venereol.* 2020;100(3):adv00030. 4. Carvalho AL, Hedrich CM. *Front Mol Biosci.* 2021;8:662047.

Genetic Risk Factors

- PsA appears to be genetically distinct from psoriasis
- Although certain genes are shared between them, *HLA-C*06:02*, for example, is less common among people with PsA



HLA=Human Leukocyte Antigen; PsA=Psoriatic Arthritis.
FitzGerald O, et al. *Arthritis Res Ther.* 2015;17:115.

Conclusions

There are no diagnostic tests for PsA, and most patients are seronegative. PsA is often a clinical diagnosis based on detailed patient history, physical examination, laboratory findings, and imaging results.[1]

Clinical, laboratory, and radiographic features that distinguish PsA from RA and OA include, but are not limited to, axial involvement, dactylitis, enthesitis, and nail dystrophy.[1,2]

Roughly 20%-30% of patients with psoriasis will have PsA,[3] with the onset of PsA usually occurring in a patient's 30s and 40s.[4,5]

Risk factors for PsA development include, but are not limited to, the presence of nail psoriasis, scalp psoriasis, PsO severity, and obesity.[6]

OA=Osteoarthritis; PsA=Psoriatic Arthritis; RA=Rheumatoid Arthritis.

1. FitzGerald O, et al. *Nat Rev Dis Primers.* 2021;7(1):59. 2. Rida MA, Chandran V. *Clin Immunol.* 2020;214:108390. 3. Merola JF, et al. *J Am Acad Dermatol.* 2022;86(4):748-757. 4. Tiwari V, Brent LH. Psoriatic Arthritis. I*n: StatPearls* [Internet]. Treasure Island, FL: StatPearls Publishing; 2022. https://www.ncbi.nlm.nih.gov/books/NBK547710/ (Accessed September 13, 2022). 5. Karmacharya P, et al. *Arthritis Rheumatol.* 2021;73(10):1878-1885. 6. Ogdie A, Gelfand JM. *Curr Rheumatol Rep.* 2015;17(10):64.

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