Comorbidities of Psoriasis

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Psoriatic Arthritis

- Psoriatic arthritis
- Axial disease
- Enthesiopathy
- Dactylitis
The risk of psoriatic arthritis remains constant following initial diagnosis of psoriasis

![Graph showing Incidence and cumulative prevalence of PsA over time in a population of psoriasis patients.](image)

- Patients with psoriasis who develop PsA (%)
- Cumulative percentage of patients with psoriasis who develop PsA

The Importance of Early Treatment in PsA

- In a recent study, 15.5% of psoriasis patients had undiagnosed PsA\(^1\).
- Diagnostic delay of >6 months contributes to poor radiographic and functional outcomes in PsA\(^2\).
- Early treatment in psoriasis may be important to provide patients with the best quality of life and prevent future PsA.


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**Disease Severity**

- At least 1 erosion: 47%\(^4\)
- 5 or more deformed joints: 55%\(^4\)
- Increased mortality due to CVD compared with the general population: 5

**Onset of psoriasis**

- 10 years
- 12 years
- 20 years
- 30 years

**Years**

**Severe pain and disability**

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Business Use Only
Imaging techniques facilitate PsA diagnosis

High-resolution MRI (hrMRI)

Images courtesy of Professor D McGonagle.
Extensor Tendon Enthesis

Sagittal section of DIPJ, Masson’s trichrome

Nail plate
Nail root (NR)
Extensor tendon (ET)
Distal Phalange (DP)

NR
SL
DP
ET

SL, superficial lamina
DL, deep lamina

PSORIASIS EPIDEMIOLOGY SCREENING TOOL (PEST)

HOSPITAL NO. .....................................................

PATIENT NAME ..................................................

DATE OF VISIT ..................................................

PEST is a validated screening tool for psoriatic arthritis (PsA) and it is recommended that patients with psoriasis who do not have a diagnosis of PsA complete an annual PEST questionnaire (NICE psoriasis guidelines 2012). A score of 3 or more indicates referral to rheumatology should be considered.

In the drawing below, please tick the joints that have caused you discomfort (i.e. stiff, swollen or painful joints).

Please answer the questions below and score 1 point for each question answered 'Yes'

1. Have you ever had a swollen joint (or joints)? Yes No
2. Has a doctor ever told you that you have arthritis? Yes No
3. Do your finger nails or toenails have holes or pits? Yes No
4. Have you had pain in your heel? Yes No
5. Have you had a finger or toe that was completely swollen and painful for no apparent reason? Yes No

Total : / 5

A total score of 3 or more out of 5 is positive and indicates a referral to rheumatology should be considered.

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### Arthritis

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Strength of consensus</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>For relief of symptoms of psoriatic arthritis, we recommend NSAIDs. As monotherapy, we recommend NSAIDs for patients with mild and non-erosive articular as well as para-articular involvement.</td>
<td>↑↑ Strong consensus.</td>
<td>Expert opinion</td>
</tr>
<tr>
<td>In patients with active joint involvement despite the usage of NSAIDs and potential poor prognosis due to polyarthritis, increased inflammatory markers and erosive changes, we recommend to start synthetic DMARDs early to prevent progression of disease and erosive destruction of joints.</td>
<td>↑↑ Consensus.</td>
<td>Expert opinion</td>
</tr>
<tr>
<td>For inadequately responding patients after at least one synthetic DMARD, we recommend the use of biological DMARDs in combination with synthetic DMARDs or as monotherapy.</td>
<td>↑↑ Consensus.</td>
<td>Expert opinion</td>
</tr>
<tr>
<td>We do not recommend synthetic monotherapy DMARDs for the treatment of axial involvement or enthesitis, as they appear to be not effective in these patients.</td>
<td>↓↓ Strong consensus</td>
<td>Expert opinion</td>
</tr>
</tbody>
</table>
Metabolic syndrome and cardiovascular background
Vicious cycle of inflammation

- Inflammatory mediators produced in various tissues may contribute to the systemic burden of inflammation

Evidence of a causal relationship between body mass index and psoriasis: A mendelian randomization study

*Mendelian randomization* is a method of using measured variation in genes of known function to examine the causal effect of a modifiable exposure on disease in *observational studies*.

- Genetic instrument comprising 97 single-nucleotide polymorphisms (SNPs) associated with BMI as a proxy for BMI

- Higher BMI causally increases the odds of psoriasis (by 9% per 1 unit increase in BMI \( \text{OR} = 1.09 \ (1.06-1.12) \) per 1 kg/m\(^2\); \( P = 4.67 \times 10^{-9} \)).

*In contrast*

- Little support to a possible causal effect of psoriasis genetic risk on BMI

Moreover, because our study validated causality (i.e., directional link) of obesity on psoriasis, interventional improvement of obesity itself could be a promising treatment strategy toward better management of psoriasis
Treatment with liraglutide, a glucagon-like peptide-1 analogue, improves effectively the skin lesions of psoriasis patients with type 2 diabetes: a prospective cohort study

Pin Chen, Xiangjin Xu, Lu Lin, Yunjie Yu, Shengping Chen, Xiangqi Chen, Zhulin Shao
Diabetes Research and Clinical Practice https://doi.org/10.1016/j.diabres.2019.03.002

• 7 psoriasis patients with type 2 diabetes were recruited to use hypodermic injection with liraglutide 1.8 mg.

• After 12 weeks of treatment, the mean value of PASI decreased from 15.7±11.8 to 2.2±3.0 (P =0.03). BMI, waist circumference, fasting blood glucose, fasting C-peptide, HbA1c, blood lipid levels, CRP all decreased significantly.


Psoriasis is associated with non-alcoholic fatty liver disease (NAFLD)

Prevalence of NAFLD in psoriasis patients vs controls

![Graph showing prevalence of NAFLD in psoriasis patients vs controls.](n=130, n=260)

Prevalence of NAFLD in psoriasis patients by disease severity

![Graph showing prevalence of NAFLD in psoriasis patients by disease severity.](n=59, n=71)

* = p<0.0001

* = p<0.01

Psoriasis is associated with an increased risk of myocardial infarction (MI)

Adjusted relative risk (95% confidence interval) of MI in patients with psoriasis vs controls

Relative risk of MI vs controls (95% confidence intervals)

Prospective, population-based cohort study (UK; n=130,976 cases, n=556,995 controls)
Anti-inflammatory therapy with tumour necrosis factor inhibitors is associated with reduced risk of major adverse cardiovascular events in psoriasis.


**OBJECTIVE:**
To determine whether tumour necrosis factor inhibitor (TNFi) therapy is associated with decreased major adverse cardiovascular events (MACE) in patients with psoriasis.

**METHODS:**
In this retrospective cohort study using the KPSC health plan, patients had at least three ICD-9 codes for psoriasis and no antecedent MACE codes.

**CONCLUSIONS:**
We observed significantly lower MACE risk in patients with psoriasis receiving TNFi compared to topical or oral/phototherapy agents. TNFi therapy may have benefits beyond skin disease in mitigating cardiovascular event risk.
Evaluation of Risk of Major Adverse Cardiovascular Events With Biologic Therapy in Patients With Psoriasis.

OBJECTIVES:
Compare MACE risk with biologics vs topical/phototherapy use.

METHODS:
Psoriasis Longitudinal Assessment Registry (PSOLAR) is an international psoriasis registry of patients eligible to receive biologic/systemic treatments prospectively. MACE is defined as myocardial infarction, stroke, or cardiovascular death. Biologic cohorts, including tumor necrosis factor-alpha (TNF-α) inhibitors (ie, adalimumab, etanercept, and infliximab) and ustekinumab, combined and by class, were compared with a topical/phototherapy cohort.

CONCLUSION:
Based on data accumulated to date in PSOLAR, treatment with biologics did not have an impact on the risk of MACE in patients with moderate-to-severe psoriasis.
Psoriasis and Mental Health Workshop: Exploring the links between psychosocial factors of psoriasis with neuroinflammation and cardiovascular disease risk

C. Elise Kleyn¹, Peter S Talbot, Nehal N. Mehta, Francesca Sampogna, Christine Bundy, Darren Ashcroft, Alexa B Kimball, Peter van de Kerkhof, Chris EM Griffiths, Fernando Valenzuela, Joelle M van der Walt, Alasdair Henry, Tsion Aberra, Lluis Puig

Depending on the screening method used, depression affects between 9 and 55% of people with psoriasis (1,2).

Danish cohort 35,001 patients with mild psoriasis and 7,510 with severe psoriasis (3), incidence rates for depression were:

- Reference population: 20.0 (95% CI: 19.9-20.0)
- Mild psoriasis: 23.9 (23.1-24.7)
- Severe psoriasis: 31.6 (29.5-33.8)

Longitudinal psoriasis registry (PSOLAR) demonstrated that treatment with biologics in moderate-to-severe psoriasis patients may reduce the risk of depressive symptoms (4).

Comorbidities of psoriasis

- Psoriasis is a disorder of inflammation not only restricted to the skin

- Comorbidities comprise inflammatory diseases of the joints, cardiovascular diseases, liver diseases, inflammatory bowel disease and psychiatric diseases