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< Pso Pscience >

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A bi-annual review digest of research associated with psoriasis and psoriatic arthritis

Welcome to this issue of *Pso Pscience* from PAPAA!

Over the past two-decades there has been a revolution in our understanding of psoriasis and psoriatic arthritis, both in terms of basic immunology, disease mechanisms and therapeutics.

This newsletter is designed to provide a summary of recently published research.

Of course, it's never a good time to have psoriasis or psoriatic arthritis, but if you have to have it, has never been a better time!

Dr David Ashton MD PhD

Fungal infections in psoriasis

Over the past decade, the connection between inflammatory skin disorders and the microbiome - i.e. the collection of all microbes, such as bacteria, fungi and viruses that naturally live on the skin and inside the body - has been increasingly accepted.

There is evidence that an imbalance between the types of natural microflora of the skin and mucosa could accelerate the onset of skin diseases in vulnerable hosts, such as patients with autoimmune disorders, including psoriasis. Various microorganisms, including fungi, can play the role of 'superantigens', triggering inflammation in the skin. However, the role of fungi in this process has not been investigated adequately in patients with psoriasis. The present investigation aimed to identify the incidence of fungal infection in patients with psoriasis.

In all, 289 patients with a prior diagnosis of psoriasis were included in this study.[1] Various species of fungus were isolated, principally Candida and Malassezia. In all, forty-six out of the 289 (15.9%) were found to have active fungal infections. Diabetes mellitus (19.6%), atopic dermatitis (13%), use of corticosteroids (10.9%) and use of broad-spectrum antibiotics (8.7%) were the most predisposing factors for fungal infections.

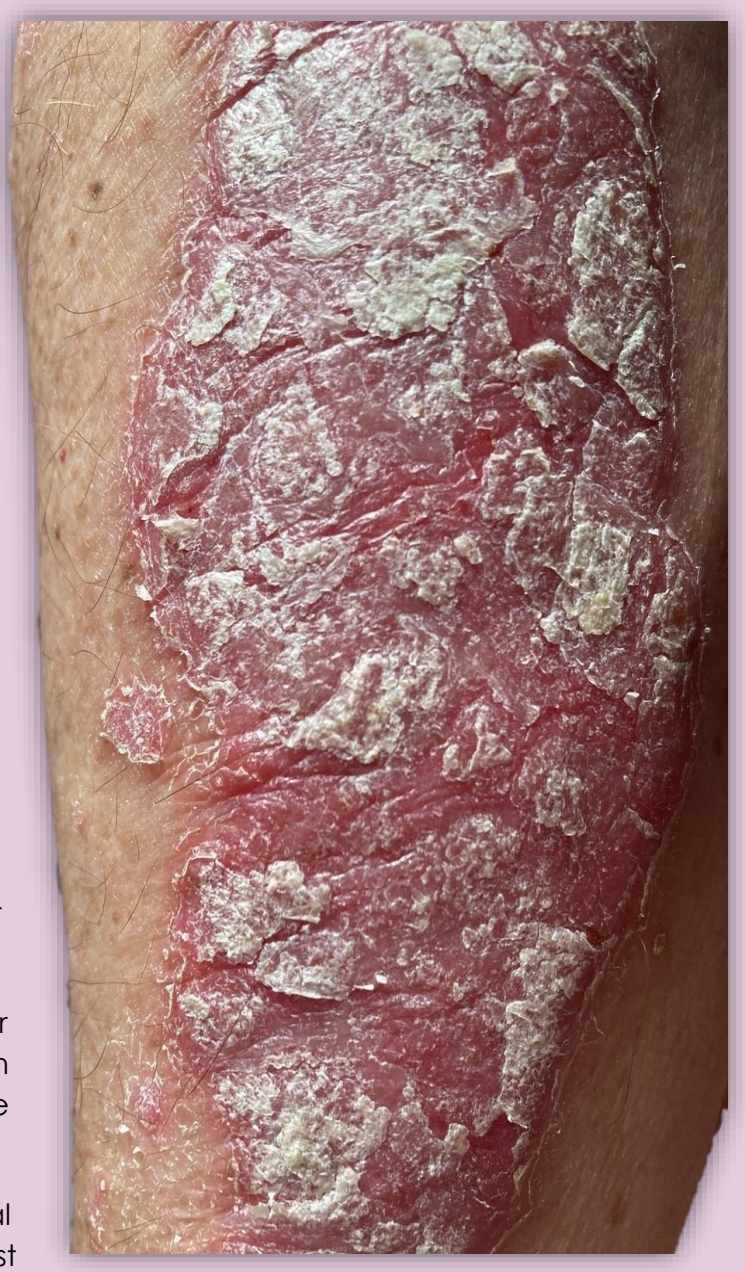
Comment:

This is an important study which suggests that a significant proportion of psoriatic patients are carrying fungal infections, which may make their psoriasis worse and more resistant to treatment. There would seem to be a case for more frequent use of mycological (fungus) testing in patients with chronic psoriasis and the addition of anti-fungal agents to their treatment regimen where indicated.

Reference:

1. Chadeganipour M, Shadzi S, Mohammadi R. Fungal Infections among Psoriatic Patients: Etiologic Agents, Comorbidities, and Vulnerable Population. Autoimmune Dis 2021 Sep 15;2021:1174748. 7 pages.

New emollient cream



Psoriasis is a chronic, incurable inflammatory skin condition that causes skin cells to multiply too rapidly, leading to scaly, itchy, and sometimes painful patches. It is triggered by an overactive immune system and tends to flare up in cycles which can last for weeks or months.

Current treatments include emollients and medicated creams containing corticosteroids, vitamin D analogues or retinoids. These treatments are effective but often limited by side effects when used over long periods. (NB: an emollient is a type of skin moisturiser that softens the skin by forming a protective barrier, trapping in moisture and preventing dryness and irritation).

Now scientists at the Universities of Birmingham and Naples have discovered that a protein made of just three amino acids - a tripeptide - has been shown to significantly reduce the severity of psoriasis when applied in a standard emollient cream.[1]

This tripeptide fragment is part of a much larger anti-inflammatory molecule called PEPITEM, which has 14 amino acids (NB: amino acids are the building blocks of proteins).

In an animal model of psoriasis, daily topical application of the most active tripeptide for just seven days resulted in a 50 percent reduction in disease severity, as measured by the Psoriasis Area and Severity Index (PASI).

This outcome was comparable to the effects of Clobetasol Propionate 0.05 percent, a commonly prescribed steroid cream. In other words, the new cream can deliver the same benefits of steroid creams, without the potential side effects.

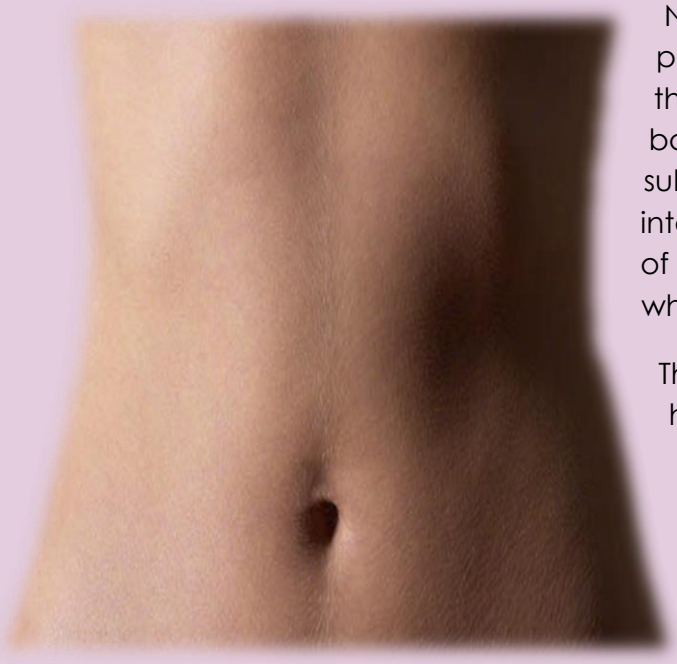
Comment: This is an important discovery which could lead to the development of a range of new topical therapies, with an efficacy comparable to standard steroid creams but without the well-known side effects, i.e. skin thinning, easy bruising, stretch marks and skin colour changes.

Reference:

1. Saviano A, Apta B, Tull S, et al. PEPITEM, its tripeptide pharmacophores and their peptidomimetic analogues regulate the inflammatory response through parenteral and topical dosing in models of peritonitis and psoriasis. Pharmacological Research, 2025; 213: 1-17

Psoriasis and 'leaky gut'

Previous research has shown that people with psoriasis have more gastrointestinal problems than the general population. However, the explanation for this has not been clearly identified. Now, a study has shown that part of the explanation may be that people with psoriasis often have invisible inflammation in their small intestines, with an increased risk of what is called 'leaky gut' syndrome (LGS).



Normally, the lining of the gut (mucosa) acts as a protective barrier that allows water and nutrients to pass through it. In some autoimmune diseases, this intestinal barrier may not function correctly, leading to harmful substances and bacteria passing into the gut wall and into the bloodstream, causing inflammation. The purpose of this study from Uppsala in Sweden was to determine whether LGS is a common finding in patients with psoriasis.

The study involved 18 patients with psoriasis and 15 healthy controls as subjects.[1] None of the participants had been diagnosed with gastrointestinal diseases. Samples were taken from both the small and the large bowel, and the researchers then studied different types of immune cells in the intestinal mucosa.

They found that psoriasis sufferers had higher numbers of certain types of immune cells in the small bowel, which also showed evidence of inflammatory activity. The same type of immune cells can be found in skin from patients with psoriasis, suggesting that inflammation of the skin may have an impact on the gut and/or vice versa.

Overall, half of the psoriasis patients in the study had evidence of LGS. Interestingly, these same patients also reported more gastrointestinal symptoms, such as abdominal pain and bloating, than patients with a normal intestinal barrier.

Comment:

This is an important study which points towards a link between inflammation of the skin and the lining of the intestine, i.e. LGS. It may help to explain why psoriasis sufferers are more likely to have gastrointestinal diseases such as ulcerative colitis and Crohn's disease.

Reference:

1. Lundquist P, Hagforsen E, Wagner M, et al. Mild-to-moderate psoriasis is associated with subclinical inflammation in the duodenum and a tendency towards a disturbed intestinal barrier. Biochimica et Biophysica Acta (BBA) – Molecular Basis of Disease; Volume 1871, Issue 3, March 2025, 167634

Treating weight loss and psoriasis

Patients with psoriasis and psoriatic arthritis are more likely to be obese or overweight. Furthermore, there is a clear association between body weight – or body mass index (BMI) - and the severity of psoriasis: the heavier you are, the more severe your psoriasis is likely to be. There is also evidence to suggest that being overweight reduces the efficacy of many of the medications used to treat psoriasis. Put simply, if you are overweight, you are more likely to have worse psoriasis, and the medications used in your treatment will be less effective.

Conversely, losing weight helps reduce overall inflammation, which results in less severe skin disease and fewer flares. The problem, of course, is that losing weight and maintaining a healthy weight is very difficult. However, a new generation of medications called GLP-1 agonists, the best-known examples of which are semaglutide (Ozempic) and tirzepatide (Mounjaro), are now well established for their efficacy in promoting weight loss. Given the link between psoriasis and obesity, treating obesity with GLP-1 agonists may offer a promising approach to improving psoriasis outcomes in those who are also obese.

In fact, a number of studies have demonstrated the efficacy of GLP-1 agonists in treating psoriasis in patients with type 2 diabetes. All subjects in these studies showed significant improvements in their psoriasis, as measured by standard questionnaires, such as the psoriasis area and severity index (PASI) and the dermatology life quality index (DLQI). The problem is that these were very small trials, sometimes containing only one or two patients and 25 patients at the most. This makes it impossible to draw any firm conclusions. Moreover, when it comes to disease impact in patients without type 2 diabetes, the evidence is inconclusive. In a study involving 20 non-diabetic obese patients, participants were given either liraglutide - a GLP-1 agonist - or placebo for 8-weeks. No significant improvements were observed either in the PASI score or in the DLQI in the study, and there was no improvement in the level of inflammatory markers in the liraglutide group. These findings suggest that the metabolic status of the patient may influence the impact on psoriasis and that the effects of GLP-1 agonists may be more pronounced in patients with concurrent metabolic dysfunction.

What all this amounts to is that although initial studies suggest that GLP-1 agonists may offer benefits for patients with psoriasis and type 2 diabetes, they are not believed to be as effective as the current group of biologic therapies, e.g. adalimumab, infliximab, which remain the first choice in treating moderate-severe psoriasis. Note also that no studies to date have included patients with psoriatic arthritis, and there is currently no evidence to suggest that GLP-1 agonists will be effective in treating normal-weight, non-diabetic patients with psoriasis.

Comment:
Clearly, large-scale trials are needed to assess the efficacy of GLP-1 agonists in broader patient populations, including patients with psoriasis, psoriatic arthritis and other chronic inflammatory conditions. Several such studies are currently underway. Read more at: www.papaa.org/weight

PAPAA is a UK patient-centred charity that supports and helps people affected by psoriasis and psoriatic arthritis. For full details about PAPAA and how to contact us go to: https://www.papaa.org/contact-us/