



**Welcome to
issue three 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, there has
never been a better
time!**

Dr David Ashton MD PhD

Dental health and psoriasis

While scientists do not know the exact causes, several studies conducted in recent years have examined the relationship between psoriasis and dental health. They have repeatedly shown that the worse a person's psoriasis symptoms, the worse their overall dental health tends to be.

In a 2019 study, researchers created a questionnaire for 265 patients seen at the Ohio State University's dermatology clinics¹. Their aim was to examine the relationship between psoriasis and patient-reported oral health. They found that those who rated their oral health as poor, also had the most severe psoriasis. Interestingly, they also noted that individuals who reported eating at least one piece of fruit per day, reported better overall dental health. This was a relatively crude study, but it does suggest a link between psoriasis and dental health.



A second, 2019 report, this time a prospective study from Germany, compared periodontal disease in 100 patients with plaque psoriasis, with 101 non-psoriatic controls². The degree of periodontal disease was assessed using a variety of measures, including 'Bleeding on Probing', 'Bleeding on Toothbrushing' and the 'Community Periodontal Index'. Results showed that during the period of follow-up, patients with psoriasis experienced worse periodontal health than non-psoriatic controls - findings consistent with previous studies. Interestingly, however, despite patients with psoriasis having worse gum health than controls, they did not have higher rates of missing teeth.

A third study, this time from China, is a review – a Meta-Analysis - of all studies which have looked at dental health and psoriasis³. In all, the authors included 8 studies, including 812 psoriasis patients and 772 non-psoriatic controls. Results again showed that psoriasis sufferers

have worse periodontal health compared with non-psoriatic controls in terms of worse gingival inflammation, more alveolar bone loss and - contra the previous study by Woeste et al - fewer remaining teeth and more missing teeth.

Comment: It seems clear from the evidence, that psoriasis sufferers have significantly worse dental health when compared with their non-psoriatic counterparts. However, it is not clear why that should be the case. There are similarities between the inflammation in gum disease and that seen in the skin lesions of psoriasis, but other factors such as diet, smoking, and alcohol consumption, may also be relevant. It is not known whether improving periodontal health will have a beneficial impact on psoriasis, or whether better management of psoriasis will improve periodontal disease. What is crystal clear, however, is that patients with psoriasis need to be especially vigilant with regard to their dental health.

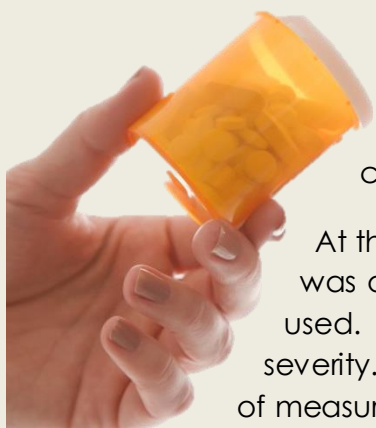
References:

- 1.Macklis P, Adams KM, Li D et al. The impacts of oral health symptoms, hygiene and diet on the development and severity of psoriasis. *Dermatology Online Journal* 2019; Web location: <https://doi.org/10.5070/D3257044813>
- 2.Woeste S, Graetz C. , et al. Oral Health in Patients with Psoriasis—A Prospective Study. *Journal of Investigative Dermatology* 2019; 139: 1237-1244
- 3.Qiao P, Shi Q, Zhang R, et al. Psoriasis Patients Suffer from Worse Periodontal Status – A Meta-Analysis. *Front Med.*, 2019: Volume 6 - 2019 | <https://doi.org/10.3389/fmed.2019.00212>

Does vitamin D supplementation improve psoriasis severity?

It is well known that topical vitamin D analogues such as tacalcitol and calcitriol, can be very effective in the treatment of psoriasis. However, the efficacy of oral supplementation on disease severity in psoriasis, has yet to be demonstrated.

In this well conducted Norwegian study¹, researchers studied the impact of vitamin D supplements in two parallel groups, across two winter seasons (2017-2018 and 2018- 2019). Each of the participants was followed for 4 months. Adults from the general population in Tromsø with active plaque psoriasis and 25-hydroxyvitamin D (25-OHD) levels of less than 24 ng/mL were included. Measures of disease activity included the Psoriasis Area Severity Index (PASI) and Dermatology Life Quality Index Score.



A total of 122 participants (46 women) were included in the trial. Of these, 60 (49.2%) were randomized to receive vitamin D and 62 (50.8%) were given placebo. A total of 120 participants (59 vitamin D and 61 placebo) completed the trial.

At the conclusion of the study, no significant difference in terms of disease severity was observed between the two groups in any of the measures of disease activity used. The authors conclude that vitamin D supplementation did not affect psoriasis severity. They speculate that low baseline disease severity scores may explain the lack of measurable effect. They also noted that levels of 25-OHD in the vitamin D group, did not increase to the levels they would have expected based on previous studies in the same population. This may also have affected the results.

A previous (2018) study of vitamin D supplementation in 65 patients with mild psoriasis (23 given vitamin D and 42 given placebo), also found no benefit for psoriatic patients compared with normal controls².

Comment: Both studies are methodologically sound, and both suggest that vitamin D supplementation has no significant effect on psoriatic disease. It is worth noting however, that the numbers in both studies are relatively small, so we cannot say definitively that supplementation of psoriatic patients with vitamin D is of no benefit. What is needed is a large, properly controlled, long-term study which will look at benefits, optimal dosing, and adverse effects. Such studies are expensive and difficult to administer. In the meantime, given that vitamin D in recommended doses is generally safe, it would seem reasonable to measure levels in patients with moderate-severe psoriasis and to introduce supplements for those who are deficient.

Reference:

1.Jenssen M, Furberg AS, Jorde R et al. Effect of Vitamin D Supplementation on Psoriasis Severity in Patients with Lower-Range Serum 25-Hydroxyvitamin D Levels: A Randomized Clinical Trial. *JAMA Dermatol* 2023; 159:518-525.

2.Jarrett P, Camargo CA, Coomarasamy C et al. A randomized, double-blind, placebo-controlled trial of the effect of monthly vitamin D supplementation in mild psoriasis. *J Dermatolog Treat*, 2018;29:324-328.

Psoriasis and bone disease

Over the past decade, accumulating evidence has linked psoriasis and psoriatic arthritis with various diseases, including osteopenia and osteoporosis. Osteopenia is characterized by low bone mineral density (BMD), and can progress to osteoporosis, with diminished bone mass and an increased risk of bone fragility and fractures. Whilst it is generally assumed that having psoriasis increases the risk of low BMD, the evidence for the association is not as clear-cut as one might think. In this study, the authors carry out a comprehensive review of the literature to assess the strength of the association¹.



In all, only 13 studies fulfilled their inclusion criteria. Many of these had small sample sizes, and others had incomplete patient data and inadequate disease documentation. Overall, there does seem to be an association between psoriasis, osteopenia, and osteoporosis, especially in those whose psoriasis is longstanding. However, the strength of the association seems to vary greatly between studies and in several, there was no association at all. Moreover, because patients with psoriasis are already in the medical system, they may be more likely to be diagnosed with bone disease than individuals in the general population (surveillance bias). And to be clear, there is no clear evidence to suggest that psoriasis causes osteoporosis.

The authors comment that there are very few data on the effect of various treatments on BMD. Some anti-psoriatic drugs like methotrexate and ciclosporin, may interfere with bone metabolism. On the other hand, there is some early evidence that treatment with some biologic drugs (though not all) may reduce bone loss in patients with psoriasis.

Given the confusion, there is an urgent need for a large-scale, prospective, international multicentre study, to investigate the association between psoriasis and metabolic bone disease, including the impact of various drug and lifestyle interventions.

Comment: This review confirms an association between psoriasis, osteopenia, and osteoporosis, i.e. individuals with psoriasis are at an increased risk of metabolic bone disease and bone fractures. However, the magnitude of the risk is difficult to assess in any given case. It seems likely that those whose psoriasis is longstanding are the most vulnerable and, in these patients, close surveillance with regular measurements of bone density and Vitamin D levels is probably warranted. Moreover, the use of a biological agent earlier rather than later, would seem to be prudent.

Reference:

1.Psoriasis and osteoporosis: a literature review. Wi D, Wilson A, Stage F et al. Clinical and Experimental Dermatology, 2022; 47:1438–1445

Outcomes of COVID-19 infection in patients with psoriasis



Do patients with psoriasis who contract COVID-19 infection, have worse outcomes than non-psoriatic patients? In this very large study from Israel, investigators used a database of 4.7 million Israeli citizens which was screened for individuals with a diagnosis of psoriasis as documented by a dermatologist. In all, 144 304 patients with psoriasis and 144 304 age- and sex-matched control individuals were identified, 51.3% of whom were female.

Patients with psoriasis displayed a slightly elevated risk of COVID-19 infection compared with the non-psoriatic controls. However, with regard to complications requiring hospitalization, there was no significant difference between the two groups. Similarly, there was no difference with regard to the risk of dying from COVID-19 infection; mortality in the psoriasis group was 1.61% compared with 1.68% in controls.

Comment

This was a large and well-conducted study, which has reassuring results for psoriasis sufferers. Whilst they have a slightly higher risk of COVID-19 infection, they do not have an increased risk for any of the associated complications, including death.

Reference:

Kridin K, Schonmann Y, Onn E et al. Nineteen months into the pandemic, what have we learned about COVID-19-related outcomes in patients with psoriasis? J Cosmet Dermatol. 2022; 21:6549–6553

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/>