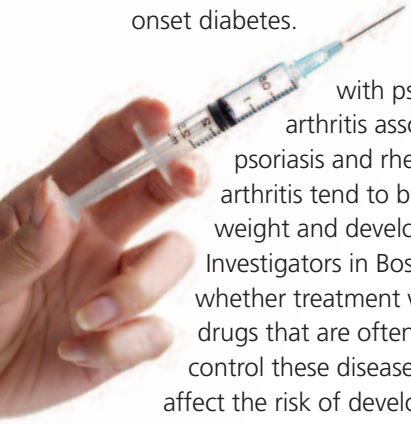
Top Stories in Research

By Dr. Jan Dutz

What's new on the research front? The articles from which these summaries of the latest in skin research are taken are so hot off the press the ink has barely dried.

Drugs used in chronic inflammatory diseases reduce the risk of diabetes

A number of chronic inflammatory diseases, such as psoriasis and rheumatoid arthritis, have been associated with an increased risk of other chronic diseases—most notably cardiovascular disease and adult-onset diabetes.



Patients with psoriasis, the arthritis associated with psoriasis and rheumatoid arthritis tend to be overweight and develop diabetes. Investigators in Boston asked whether treatment with the drugs that are often used to control these diseases might also affect the risk of developing diabetes. They compared rates of new diabetes diagnosis in 13,905 patients with psoriasis or rheumatoid arthritis who had received one of four treatments: tumour necrosis factor (TNF) inhibitors (adalimumab, etanercept and infliximab), methotrexate, hydroxychloroquine (an antimalarial drug) or other immunosuppressive regimens.

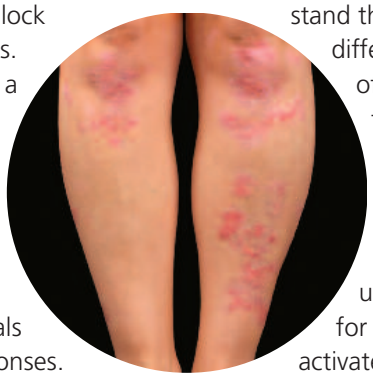
Six months later, the rates of new-onset diabetes were higher in patients treated with immunosuppressive agents other than methotrexate, TNF inhibitors or antimalarials. TNF inhibitors and hydroxychloroquine significantly reduced the relative risk for new-onset diabetes.

The lower risk of developing diabetes may be related to unexpected effects of the drugs, such as the blood-sugar stabilizing effect of hydroxychloroquine or the effect of TNF inhibitors on fatty tissue. These results suggest that the use of inflammation-suppressing medications may result in improved health outcomes.

Immune cells are activated by specific triggers in psoriasis and atopic dermatitis

Psoriasis and atopic dermatitis are two common scaly skin disorders. In psoriasis, the inflammation and scale are thought to be due to an extreme response to perceived skin damage or infection, resulting in the local infiltration of immune cells—termed T cells—that produce chemicals such as interferon and interleukin-17. These chemicals promote the skin's ability to fight infection. Many of the treatments used for psoriasis (e.g., steroid creams, methotrexate, cyclosporine, ustekinumab and TNF inhibitors such as adalimumab, etanercept and infliximab) block the activity of these cells.

In atopic dermatitis, a defect in the skin barrier is thought to promote inflammation. This is mediated by T cells that produce the chemicals interleukin-4 and -22. These chemicals promote antibody responses.



Although psoriasis and atopic dermatitis rarely coexist in the same patient, investigators from Germany decided to study patients with both disorders. They created new lesions in patients known to be allergic to dust mite allergen or nickel by applying these substances to unaffected skin. In each case, the lesions had features of atopic dermatitis (when dust mite allergen was used) or allergic dermatitis (when nickel was used), but not psoriasis. The immune cells within the lesions had chemical profiles characteristic of either atopic or allergic dermatitis T cells, but not of psoriasis T cells.

The authors concluded that T cells migrate into the skin in atopic dermatitis, allergic dermatitis and psoriasis in response to specific triggers. For example, immune cells that induce psoriasis do not travel into the skin when it is irritated by nickel or dust mite antigen. Interestingly, some treatments (TNF inhibitors) controlled psoriasis but worsened atopic dermatitis, whereas other treatments (cyclosporine, ustekinumab) controlled both diseases.

This research helps us to understand the differences between different scaly diseases of the skin and how treatment with anti-inflammatories may improve some diseases, but worsen others. It also sends us on a new search for the agents that activate T cells in both atopic dermatitis and psoriasis. CS

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