Medical Xpress

Team uncovers dose of medication more likely to put patients with pemphigus into remission

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Pemphigus, an autoimmune disease mediated by B cells and which causes painful blisters and sores on the skin and mucous membranes, is a rare chronic autoimmune condition that can be fatal if not treated. Treatment for pemphigus, most commonly through an oral medication, was often slow and would not result in complete remission. Now, new research from a team in the Perelman School of Medicine at the University of Pennsylvania shows that a lymphoma-dose regimen of rituximab, a medication regularly used to treat lymphoma and rheumatoid arthritis, is more likely to put patients with pemphigus into complete remission as compared to a rheumatoid arthritis (RA) regimen of the same medication. The findings—which were published recently in *JAMA Dermatology*—have direct implications for patient care.

When rituximab, an antibody which was first used to treat B cell lymphoma, became a treatment for pemphigus vulgaris, clinicians could choose to prescribe either a "lymphoma dose" or an "RA dose." A lymphoma-dose regimen of rituximab is a more aggressive approach to treatment compared to the dosing method for patients with rheumatoid arthritis. What's more, the U.S. Food and Drug Administration (FDA) now has an approved dosing regimen for pemphigus vulgaris, but it closely resembles the often less-effective RA dose. While both lymphoma and RA dosing approaches deplete B cells that cause disease, the lymphoma regimen takes into account a person's height and weight to determine a dose and is given weekly for four weeks. A rheumatoid

arthritis dose is a fixed dose of two 1000 mg infusions given two weeks apart. The odds of complete remission for patients on a lymphoma regimen were 2.7 times greater compared to patients on a RA regimen suggesting that the FDA-approved regimen for pemphigus may not be ideal.

The rationale for using the rheumatoid arthritis regimen for pemphigus patients is that like pemphigus, rheumatoid arthritis is a B-cell-mediated autoimmune disease, as opposed to a B cell cancer where the total number of B cells greatly exceeds those in an autoimmune patient. Because the FDA-approved dose for pemphigus vulgaris is the same as the RA dose, some patients have insurance that only covers the RA regimen of the very-expensive medication. And on top of all that, rituximab is an immunosuppressant, so higher doses may risk higher rates of infection.

"All these reasons made it logical for physicians to use the medication more conservatively," said the study's senior author Aimee Payne, MD, Ph.D., director of the Penn Clinical Autoimmunity Center of Excellence. "However, our findings suggest that the more aggressive lymphoma approach gives a patient the best chance for complete remission off oral immune suppressants, and that's obviously the desired outcome."

In addition, Payne and her team found that the odds of achieving complete remission in patients over age 65 was almost 10-fold greater than those under age 45, and patients with moderate to severe obesity had over 7-fold lower odds of achieving complete remission compared to non- or mildly obese patients.

Nevertheless, the evidence supports the use of rituximab in general for treating pemphigus. Before the medication, the only FDA-approved treatment option was a course of steroids. Looking at rituximab's success

in both dosing regimens combined, the study showed 48 percent of patients achieved complete remission after just one cycle of the drug. With repeated cycles, complete remission jumped to 71 percent.

While five percent of the patients in this study developed serious infections over the course of rituximab treatment for pemphigus, that's still lower than historical rates in patients who receive high-dose steroid therapy for the disease—another reason to suggest rituximab is a suitable treatment, although larger studies would be necessary to determine if the risk of serious infection is significantly higher between the lymphoma and RA regimens.

"Rituximab is not a perfect medication since it does weaken one's immune system like steroids do, but it's more effective than steroids in treating this very serious autoimmune disease," said Payne. "This is the first study to provide evidence for physicians to justify a lymphoma-dose regimen of rituximab when treating their patients with pemphigus."

More information: Carolyn J. Kushner et al, Factors Associated With Complete Remission After Rituximab Therapy for Pemphigus, *JAMA Dermatology* (2019). DOI: 10.1001/jamadermatol.2019.3236

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