

UT News

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*****New test can predict allergy
to sulfa drugs

DALLAS--Sulfonamides, commonly known as sulfa drugs, are powerful and effective antimicrobial drugs in widespread use. Unfortunately, however, they sometimes cause allergic reactions that can range from itching hives to anaphylactic shock to destruction of blood cells or entire organs, even the skin.

However, recent discoveries are yielding ways of suppressing these allergic reactions so that life-endangering infections can be treated with sulfonamides despite an allergy to the drugs, says allergy expert Dr. Timothy Sullivan at The University of Texas Health Science Center at Dallas.

For the average American woman with a painful urinary tract infection or a child with a middle ear infection, an allergy to sulfonamides usually means enduring the reaction briefly after switching to another drug.

But for an AIDS patient with toxoplasmosis or pneumocystis pneumonia, an inability to take sulfonamides due to an allergy can mean less effective therapy with more toxic drugs. Despite severe injury to part of their immune systems, half of the AIDS patients treated with a sulfonamide become allergic to the drug, making them 10 times more prone to have allergic reactions than normal.

"Serious reactions prevent use of sulfonamides in some patients for whom no effective alternatives are available," says Sullivan, chief of the Allergy and Immunology Unit at the health science center.

In AIDS patients, allergic reactions to sulfonamides are often difficult to stop, Sullivan says. "Steroids may not work, and some reactions in these patients are very severe. These reactions may necessitate expensive hospital stays just to combat the allergy."

A research team led by Sullivan has recently announced discoveries that bring new hope to sulfonamide allergy sufferers, particularly those who require therapy with this class of drugs. The research team, which includes Drs. Dean Carrington and Harry Earl, has developed a test to determine whether a person has an allergy to sulfonamide drugs. The test, reported in the March issue of the Journal of Allergy and Clinical Immunology, can detect the presence of IgE antibodies made by the body to attack sulfonamides. Antibodies of the IgE type can trigger allergic reactions.

Sullivan says the antibody test should be useful for determining whether or not an allergic reaction was caused by sulfonamides. And it should help predict who risks an immediate reaction to sulfonamides.

(More)

But more important, the research revealed the form of sulfonamides recognized by human antibodies. This knowledge of the structures recognized by antibodies to sulfonamides should permit the development of molecules that can stop or prevent reactions, says Sullivan.

Sullivan says his team has already shown they can inhibit allergic reactions to sulfonamides in a test tube.

"Simply put, we feel that this work represents a significant advance in our understanding of sulfonamide allergy and points the way for development of powerful new approaches to avoid or suppress allergic reactions to these important drugs," he says.

"In treating AIDS patients, we feel that our research has opened the door on analysis of sulfonamide reactions as well as on approaches to suppress the reactions. With these approaches, we may be able to develop effective methods to treat life-threatening infections with sulfonamides despite the presence of a potential for a serious allergic reaction," Sullivan says.

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NOTE: The University of Texas Health Science Center at Dallas comprises Southwestern Medical School, Southwestern Graduate School of Biomedical Sciences and the School of Allied Health Sciences.