Review article examines sublingual immunotherapy for treatment of allergic rhinitis and asthma

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In an examination of a type of treatment for allergic rhinitis and asthma that is used in Europe but not approved by the U.S. Food and Drug Administration, researchers found moderate strength in the evidence from previous studies to support the use of sublingual immunotherapy for the treatment of these conditions, according to an article in the March 27 issue of *JAMA*. Sublingual immunotherapy involves administration of aqueous allergens under the tongue for local absorption to desensitize the allergic individual over an extended treatment period to diminish allergic symptoms.

Allergic rhinitis (an allergic reaction with symptoms similar to a cold) affects approximately 20 percent to 40 percent of the U.S. population. Considerable interest has emerged in the use of sublingual immunotherapy as a treatment. Compared with subcutaneous (under the skin) immunotherapy, sublingual immunotherapy is easy to administer, does not involve administration of injections, and may be administered at home, avoiding office visits. "In 1996, a World Health Organization Task Force on Immunotherapy cited the emerging clinical data on sublingual immunotherapy, and recognized its potential as a viable alternative to subcutaneous therapy," according to background information in the article. Some physicians in the U.S. use subcutaneous aqueous (watery) allergens, off-label, for sublingual desensitization.

Sandra Y. Lin, M.D., of the Johns Hopkins University School of

Medicine, Baltimore, and colleagues conducted a systematic review of previous studies to examine the effectiveness and safety of aqueous sublingual immunotherapy for allergic rhinoconjunctivitis and asthma. After a review of the medical literature, the researchers identified 63 studies with 5,131 participants that met the inclusion criteria for the review. Participants' ages ranged from 4 to 74 years. Twenty studies (n=1,814 patients) enrolled only children.

The researchers found strong evidence supporting that sublingual immunotherapy improves asthma symptoms, with 8 of 13 studies reporting greater than 40 percent improvement vs. the comparator. "Moderate evidence supports that sublingual immunotherapy use decreases rhinitis or rhinoconjunctivitis symptoms, with 9 of 36 studies demonstrating greater than 40 percent improvement vs. the comparator. Medication use for asthma and allergies decreased by more than 40 percent in 16 of 41 studies of sublingual immunotherapy with moderate grade evidence. Moderate evidence supports that sublingual immunotherapy improves conjunctivitis symptoms (13 studies), combined symptom and medication scores (20 studies), and disease-specific quality of life (8 studies)."

Evidence was similar in strength to support the use of sublingual immunotherapy in children (

Local reactions were frequent, but there were no reported episodes of anaphylaxis, life-threatening reactions, or death in any treated patients across studies.

"Our review found moderate strength in the evidence to support the use of sublingual immunotherapy for allergic rhinitis and asthma. This indicates moderate confidence that the evidence reflects a true efficacy. However, future research could change the estimate. High-quality studies are needed to answer questions of optimal dosing strategies," the

authors conclude.

Harold S. Nelson, M.D., of National Jewish Health, Denver, writes in an accompanying editorial that "although the publication of many studies has been reassuring regarding issues of efficacy and safety of sublingual immunotherapy, as reported by Lin et al, several concerns regarding use of sublingual immunotherapy in the United States remain."

"There are no extracts licensed by the U.S. Food and Drug Administration (FDA) available for sublingual administration of immunotherapy. In the absence of any product for which appropriate dosing and safety have been established in the United States, there is no Current Procedural Terminology code for administering sublingual immunotherapy to patients in the United States."

"Until sublingual immunotherapy gains FDA approval, physicians who choose to administer off-label sublingual immunotherapy will have limited guidance in selecting effective dosing. In addition, clinicians should be aware that the evidence for efficacy of sublingual immunotherapy is derived from studies of treatment with a single allergen extract, not with combinations of unrelated allergens."

More information: *JAMA*. 2013;309(12):1278-1288
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