Study suggests alternative to using preservatives in nasal spray

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A preservative-free alternative to standard nasal sprays -- which routinely use preservatives that can cause unwanted side effects, such as allergies or damage to the mucosal lining of the nose -- was found to be both safe and well-tolerated, in a short-term study from the Stanford University School of Medicine.

The alternative acidified solution also maintained sterility in the applicator bottle without the use of the chemical preservatives, according to the study, which will be published Nov. 15 in the *Archives of Otolaryngology-Head & Neck Surgery*.

"There is another way that you can preserve nasal sprays that is safe for consumer use," said Peter Hwang, MD, professor of otolaryngology and co-author of the study. "This also has potential for eye drops, medicated sprays, eardrops."

Stanford researchers decided to test the safety of the new method of maintaining sterility, which is patented by an ophthalmologist in Los Altos, Calif., as an alternative to the wide use of preservatives in everything from over-the-counter nasal sprays to medicated sprays and eye drops. Scientific evidence has shown that the preservatives used, such as benzalkonium chloride and phenylcarbinol, can damage human and animal tissues.

Researchers compared the use of a saline nose spray that had been acidified by hydrochloric acid to a pH of 2.5 and then buffered by low

concentrations of citric acid with the commonly used over-the-counter saline nose spray Ocean Spray, which contains both benzalkonium chloride and phenylcarbinol.

Twenty healthy subjects used the preservative-free saline spray in each nostril twice a day for a week followed by a weeklong "washout period" and then another weeklong use of the over-the-counter commercial product. Each subject underwent a nasal endoscopic exam and filled out an extensive questionnaire — the Sino-Nasal Outcome Test, or SNOT — at the end of each week of nasal spray use.

The open-applicator bottle was also tested for bacterial growth. None was found in either of the spray solutions. No differences were found in symptom reporting or in the endoscopy findings between the preservative-free versus the preservative-containing spray.

"Of those analyzed, we believe that the most important symptoms for determining the safety and tolerance of the preservative-free acidified solution nasal spray are nasal burning, smell disturbance, taste disturbance, nasal bleeding, purulent rhinorrhea [runny nose with pus], sore throat, need to blow nose, sneezing, runny nose, postnasal discharge, thick nasal discharge, ear fullness, ear pain and facial pain or pressure," the authors write. "There were no discernible differences in these symptoms between the two nasal sprays used."

Provided by Stanford University Medical Center