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Aspirin and NSAIDs may not be safe for everyone

Sam was suffering from indigestion. His wife suggested that he take Alka-Seltzer®. Within minutes of taking the medication, Sam developed generalized redness of skin associated with itching and large hives, swelling of lips and tongue and experienced significant wheezing and difficulty breathing. Immediately he was rushed to a local hospital by ambulance, received appropriate emergent treatment, got better slowly and released home after 24 hours of observation. Now he knows to avoid Aspirin and NSAIDs, reads labels of medications before taking them and carries two EpiPens with him at all times for emergency use.

Allergy to aspirin and NSAIDs (nonsteroidal anti-inflammatory drugs such as ibuprofen and Naproxen) are common. Adverse reactions caused by these medications range from hives to exacerbations of asthma, anaphylaxis and death. They also could cause other adverse reactions such as stomach irritation, ulcers and bleeding, easy bruising and impairment of liver and kidney function. Elderly population is particularly vulnerable to the later problems. This article will mainly discuss allergic and pseudoallergic reactions caused by these medications.

Types of allergic reactions due to Aspirin and NSAIDs

Aspirin and NSAIDs can cause both antibody (IgE) mediated true allergic reactions and non-antibody mediated pseudoallergic reactions. In IgE mediated reactions a specific IgE antibody directed against NSAID (ibuprofen for example) is formed following initial exposure to the medication. This is called sensitization. Following sensitization subsequent exposure to the same medication could result in a true allergic reaction consisting of hives, swelling of lips, eyes, tongue and throat, respiratory difficulties, low blood pressure and even death. True IgE mediated allergy to NSAIDs is rare and usually there will be history of prior exposure to the drug in question in such patients. The allergy is also usually specific for the medication in question and other forms of NSAIDs are usually tolerated well.

In pseudoallergic reactions caused by Aspirin and NSAIDs, the clinical picture resembles a true allergic reaction; however no antibody is involved in causing these reactions. The medications inhibit an enzyme (a protein) in the body called Cyclooxygenase One. This inhibition results in overproduction of another chemical called Leukotriene. This overproduction of Leukotrienes causes reactions resembling allergy to these medications. Since there is no antibody involved in these reactions, they are called pseudoallergic

reactions. Pseudoallergic reactions are much more common than true allergic reactions. Since these medications act by inhibiting Cyclooxygenase one enzyme, more than one medication belonging to this group can cause similar problems in a given individual. Some medications in this group have higher affinity for the enzyme than others. Such medications are more likely to cause problems than others.

Samter's Triad

Some patients who have underlying nasal polyps, sinusitis and asthma are more prone to the adverse effects of these medications than normal people are. When such people ingest any of these medications, they develop worsening of nasal polyps, sinusitis and asthma in addition to manifesting symptoms of allergy. This is described in the medical literature as Samter's Triad- named after the famous Illinois physician who described it first.

Diagnosis and treatment

There is no commercially available skin or blood tests for Aspirin and NSAIDs allergy or pseudoallergy. It is diagnosed by obtaining good medical history. Physical examination may show the presence of nasal polyps, sinusitis or asthma. Patients who are allergic to Aspirin and NSAIDs should strictly avoid all of these medications. Medication labels should be read before taking any OTC medications. If necessary a pharmacist should be consulted. All such individuals should carry two EpiPens with them at all times for emergency use and should be proficient in using them if required. Weak inhibitors of Cyclooxygenase such as sodium salicylate, choline magnesium salicylate or acetaminophen (Tylenol) may be tolerated by these individuals in smaller doses but even they could be dangerous in highly sensitive individuals. Medical advice should be sought before trying any of these medications. Aspirin desensitization under medical supervision in clinic or hospital setting is possible in qualified individuals if it is absolutely necessary to use aspirin. An allergist should be consulted if such an undertaking is required.

About the author:

Natarajan Asokan, M.D., F.A.A.P. is a board certified allergist and immunologist and a board certified pediatrician with over 25 years of experience as a physician and 8 years of experience as a practicing allergist & immunologist. He treats adults and children with various allergy & immunology problems. He can be reached at 1739, Beverly Ave, Suite 118, Kingman, AZ 86409, Tel: 928-681-5800, Fax: 928-681-5801, or www.trinityallergy.com