



ALLERGY INFORMATION

MEDICATION AND IMPLICATIONS

Nitric oxide is a biomarker for inflammatory mediators that reflect activity of the eosinophils, which are the main marker for severity of inflammation in asthma. The definitive test is a BAL (bronchialalveolar lavage) of eosinophils, which correlates with effectiveness of inhaled steroids. FeNO (fractional exhaled nitric oxide) can now be measured by portable devices such as the mini portable meter or the aperiion device. Levels above 20 parts per billion are correlated with non-control of asthma.

Recently, nitrous oxide has been used to measure the level of inflammation in asthmatics. With the use of special sensors, the patient's level of inflammation can be determined with a thirty-second breathing pattern. However there is controversy as to the absolute level of nitrous oxide that separates asthmatics from non-asthmatics.

Inhaled steroids control the inflammation and deliver the drug to the site of the disease without a large amount of systemic absorption. Some common prescriptions include mometasone, fluticasone, beclomethasone, budesonide and combination therapy of Serevent, fluticasone, foradil and budesonide. The drug combinations are generally for more severe asthma. Also albuterol and other short-acting inhalers act as rescue medication, which patients use to reverse an immediate feeling of short breath. The chlorofluorocarbon previously used in these inhalers has been replaced with hydrofluoroalkane, to decrease the effect on the ozone layer.

The doses, given in micrograms (unlike an oral does, which are typically administered in milligrams) go to all parts of the body, and can create many side effects. Drug allergy can involve many different compounds and types of reactions, but the two most common culprits are penicillin and sulfur drugs. Penicillin is the most common form of drug allergy over the last 65 years. The major antigen is the six carbon benzene ring that people react to. Patients usually develop a maculopapular rash, a diffuse red rash on the body or centripetal rash, which spreads out to the legs and arms.

Currently, there is no adequate test for penicillin allergy. One needs to test with both penicilloyl-polylysine or PPL to test the major determinants, and an MDM (minor determinant mixture) to check for fatal reactions. As the penicillin passes through the liver it is hydroxylated, sulfated and combines with albumin to produce different chemical compounds. The fatal reaction usually happens to the MDM. If necessary, one must do a graded penicillin challenge if the patient has a history of reacting to penicillin. However there has never been a fatal reaction to penicillin through the oral route.

Sulfur is the second most common drug allergy in general medicine. Sulfur is present in water pills, celecoxib, Bactrim and Azulfidine anti-arthritis drugs. Because the liver is often a slow hydrolyzer, some patients digest sulfur slowly, resulting in the body being exposed to the chemical for longer periods of time. The most common manifestation of an IgE allergy to sulfur is a maculopapular rash. The patient can develop Stevens-Johnson Syndrome, or ulcers to mucosal surfaces such as the vagina, anus or mouth. This type of lesion can become a toxic

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epidermal necrolysis or a virtual burn. Patients can be desensitized to IgE sulfur reactions, but not Stevens-Johnson Syndrome.

Sulfur drugs can also absorb sunlight and cause a photosensitive reaction on the sun exposed surfaces. These typically appear on the face, and the tops of the hands and feet. Finally most drugs – even if they don't cause IgE reactions – can be inured against when the need for a life saving therapy outweighs the patient's history of an allergic reaction. A patient can be administered one hundredth to one thousandth of the dose, which is then doubled every half hour until the patient gets a therapeutic amount. A rush desensitization can be done in one day, and a slow one can be broken down to take one month.

In addition nasal saline with several companies such as ENTSOL and Neilmed provide a wash that is capable of restoring the nasal cilia. It helps the hairs in the nose to continue to dispose of the mucous in a coordinated way. However there is no permanent remediation for this condition. Finally patients can get rebound symptoms from overuse of afrin or other vasoconstrictors. This can lead to a permanent nasal congestion although use for five days or less does not usually cause congestion.

Finally the patient should be given a regimented treatment plan to indicate when they should step up their medication if their peak flow falls by ten percent or more. All of these measures may need to be taken into consideration when deciding how much medication to put an asthmatic on and much medication to decrease when the patient is not in the peak asthmatic season. All of these measures are incorporated into the new asthma guidelines published by the National Institute of Health to judge the severity of asthma.