

Diagnosis of Asthma

The early symptoms of asthma are coughing and wheezing. These are also the most visible signs and often put the doctors on an alert for further medical examinations. Mostly physicians are able to treat mild and moderate asthma. But it is advisable to undergo complete tests for a detailed diagnosis by an asthma specialist. Various tests that are used for asthma are:

Study of the Case History: A detailed study of the case history is done by the doctors. This case history is generally obtained by asking a lot of questions usually through a written questionnaire. Generally the doctors want to know the details about the symptoms, time when the symptoms began and the kind of medication taken for relief. They also want to know about the seasonal patterns, smoking habits, effects of exercise or cold weather and effect of exposure to polluted weather. The situation related with asthma that may be present in one's system is of interest to the doctors. Other kinds of allergies like hay fever, eczema or allergic reactions to any kind of food and drugs that may be present in a person's system as also the conditions about repeated bouts of sinusitis, nosebleeds, loss of smell or taste, or ear infections. Also the presence of such symptoms in the person's immediate and extended family is of utmost interest to the doctors.

Physical Examination: The physical examination focuses on the skin, eyes, nose, throat and chest. The skin is checked for eczema or hives. Ear and nose is checked for infections and any inflammations that would indicate any underlying allergies. Allergic rhinitis or hay fever is indicative of dark and deep circles under the eyes. These are also associated with asthma closely. The chest examination is most important part of a doctor's physical examination for asthma. The doctors use stethoscope for detection of wheezing and measure the rate of movement of air in and out of the chest. The doctors sometimes ask the patient to exercise in order to interpret the exact status of wheezing. On other times they may be able to detect this completely just by asking a person to breathe deeply.

Breathing Tests: Breathing tests measure lung capacity. These tests are conducted with the help of a machine. The patient is asked to breathe into a tube connected to the machine and the machine measures how much air is expelled from the lungs in one breath. These machines determine the quantity of air the lungs can hold, which determines the volume of the lung and the speed with which air can be exhaled out of the airway or bronchial tubes. If these initial tests are not normal the person is asked to inhale a bronchodilator drug and repeat the test. Testing the amount of air that a person can inhale in one second is called one second vital capacity test. This is perhaps the most important test in determining asthma.

Laboratory Tests:

Eosinophil Test: The laboratory tests are done for exact diagnosis. Some of the simple tests include a nasal or sputum smear in which mucus from the nose or chest is examined under a microscope for an excess amount of white blood corpuscles called eosinophils. They are indicative of asthma or an allergic reaction and they increase in number many times over when the condition of asthma or allergy arises. The severity of

asthma is indicative of the rise of the numbers of eosinophils. In infants and toddlers sweat test and gamma globulin tests may also be done to come to conclusions about their asthma condition.

Skin Tests: The skin tests detect the presence of allergens with the help of antibodies which are present in the skin. The extract of antibody in the skin with its corresponding antigen is applied to the skin. This causes the release of histamine or histamine like substance by the tissues and results in redness around the test site.

In scratch tests some superficial scratches or abrasions of about $\frac{1}{4}$ cm length are made on the cleansed skin of the arm or the forearm. These scratches are not deep enough to cause any bleeding. Over these scratches allergenic extracts are applied. After about fifteen minutes these extracts are removed and reactions are observed by comparisons with the control tests.

In the intracutaneous tests the allergenic extracts are introduced into the skin by a syringe. This test is to be done with utmost care as if not done properly they can sometimes cause an allergic reaction. Otherwise they are very safe and are conducted on children also.

Blood Tests: Blood tests are also used for detecting allergy by many doctors. In these tests a small sample of blood is processed through an analyser to see if the blood contains allergic antibodies for certain allergens. These tests are very useful when the doctor cannot perform skin tests for fear of initiating an allergic reaction in the patient's body.

Provocation Inhalation Tests: In order to confirm a doubtful skin reaction test some doctors also perform the provocation inhalation test. The extract which showed doubtfully positive results is given to the patient to see if the patient gets breathless after inhaling it. The spasm produced in the airway as a result of positive reaction is measured by making the person take a breath test.

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