



GLOBAL SPIROMETRY DAY

Thursday, October 14, 2010

Spirometry: an essential test for the diagnosis and follow-up of the most common respiratory diseases such as asthma and COPD

Did you know that asthma and COPD are the most common respiratory diseases in Canada and that they remain vastly under diagnosed? Spirometry is underutilized and yet, this test is required to diagnose chronic respiratory diseases. Fewer than 30% of family physicians in Canada request a spirometry to establish a diagnosis of COPD. It is just as problematic at the MUHC! Fewer than 50% of patients diagnosed with COPD at the ER or during hospitalization have this diagnosis confirmed by spirometry. We must all do our part in order to improve diagnosis and optimize treatment of asthma and COPD.

What is spirometry?

Spirometry is a simple, safe and painless test that measures lung function (or lung capacity) and compares it to the average lung function of a person of same race, sex, height and age. The physician will be able to determine if the patient has pneumopathy, and of which type, (for example asthma or COPD) on the basis of that comparison.

Why measure lung function with a test as simple as spirometry?

Everyone agrees that measuring blood pressure and regular glycemia controls are essential methods of making a diagnosis and ensuring follow-up of diseases such as hypertension and diabetes.

In the same manner, spirometry deserves an important place in the diagnosis and follow-up of chronic pulmonary diseases such as asthma and COPD.

Spirometry allows:

- Early detection of respiratory diseases
- Accuracy of diagnosis
- Follow-up of the disease

How is lung function measured ?

In hospital, a respiratory therapist tests with the help of a spirometer. This is a portable instrument fitted with a rubber or cardboard mouthpiece in which the patient will exhale to empty their lungs. It is generally connected to a computer and results are shown on the monitor. The instrumentation of the lung function laboratory is much more imposing, but the spirometry principle remains the same. We directly measure changes in the volume of the lungs. Results are shown on a spirogram – a graphic representation of respiratory capacity.

This is a simple test, but it requires energy from the person being tested. The patient is seated with a nose clamp and a mouthpiece firmly held in the mouth, between the teeth. The respiratory therapist gives clear instructions to the patient. After taking a deep breath, the subject must exhale as fast and as hard as possible until the lungs are empty. This is repeated approximately three times at short intervals. The test itself lasts less than 10 minutes.

For whom do we request spirometry?

Given the prevalence of asthma and COPD and the fact that their symptoms are not well known by people with these diseases, it is necessary – even indispensable – to measure lung function in adults presenting respiratory symptoms.

Adults who answer 'yes' to at least one of the following questions should be submitted to a spirometry test.

- Are you a current or ex-smoker?
- Do you cough regularly?
- Do you cough up sputum regularly?
- Do you become breathless more rapidly than most people your own age?
- Do you wheeze regularly?

Do you speak 'spirometry'?

Many people know their blood pressure, their glycemic index and their cholesterol level. After the spirometry, you should also know your FEV1 and your FVC. They are sort of indicators of your respiratory health.

Here are some definitions to help your comprehension:

FEV1 = forced expiratory volume in one second.

It is the maximum volume of air that can be expired during the first second of a forced, rapid expiration following maximum inhalation.

It is important to compare the FEV1 to the normal value for a person of the same age, sex and size. We can thus obtain a percentage of predicted value allowing us to determine the extent of the pulmonary obstruction.

FVC = Forced Vital Capacity

Total air volume (in liters) measured when the patient is exhaling with maximum speed and effort, following maximum inhalation. It is measured during forced expiration: the subject must inspire as hard and profoundly as possible, then expire as hard and fast as possible until his lungs are empty.

FEV1/FVC

The average adult person can expire between 70% and 80% of their vital capacity during the first second of forced expiration. A value inferior to 70% indicates an obstruction of the airways and the possibility of asthma or COPD.

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Members of the Québec public will be given the opportunity of doing a spirometry test and of having the respiratory capacity of their lungs measured by a certified respiratory therapist at the open house of the Montréal Chest Institute from 9h to 5h