Monitoring COPD With Spirometry

by BRENDA VANTA

The Best Way to Assess COPD Progression

Spirometry, also known as lung or pulmonary function test, is a very common and effective test to identify problems with lung function, being the best diagnostic tool for COPD and asthma.

It is a breathing test, and you will be asked to take a big breath through a mouthpiece and blow it as much and as hard as you can into a machine. This machine helps evaluate how well an individual's lungs are working.

It measures how much air your lungs can blow in the machine and how long it takes to do so. It is performed in the hospital by trained healthcare therapists.

Sometimes you may take medication and repeat the test, so the doctor can assess whether or not the medication would work for you. It takes no more than 10 minutes, although it may be repeated a few times for accuracy and is painless.

Spirometry can help confirm the diagnosis of COPD and show how severe it is. It also helps the doctor to choose the optimal treatment and in time can tell how well this treatment works and how well the disease is managed.

FEV1 or forced expiratory volume in one second is the amount of air you can blow in a second. FVC or forced vital capacity is the amount of air you can blow out in one breath. These two results are used in the formula FEV1/FVC ratio.

The results are adjusted according to your age, gender and height since all these factors influence the lung capacity. Then, the results are compared with the results that would be expected and predicted as average for a person of your age, gender and height.

Predicting the Progression of COPD

If FEV1/FVC ratio is lower than the predicted average, you have likely restricted airways. If FEV1 is lower compared with the predicted average, then the severity of COPD can be evaluated regularly.

The severity of COPD can be expressed using the four stages of classification. Stage 1 also called mild COPD is defined by an FEV1 of 80% or more of the predicted value.

Stage 2 or moderate COPD is characterized by an FEV1 between 50% and 79% of the predicted value. Stage 3 or severe COPD is an FEV1 between 30% and 49% of the predicted value. Finally, stage 4 (very severe) COPD is marked by a very low FEV1- less than 30% of the predicted value.

As the disease progresses, FEV1 will gradually decrease, and thus spirometry is the most important tool to evaluate the evolution of COPD. By evaluating the stage of this condition, treatment can be adjusted and

optimized, so the patient’s lungs will function at best.

A 2013 study featured in “Pneumologia I allergology Polska” suggest another test to be added to spirometry, which is the exercise capacity. This study used a cycle ergometer.

Interestingly, the deterioration of exercise capacity over time was independent of airway obstruction, and both tests asses the severity of COPD. In the future, exercise capacity and other tests may be added to better monitor the progression of COPD.