

INTERVENTIONAL BRONCHOSCOPIC TREATMENTS IN COPD

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Chronic obstructive pulmonary disease (COPD), is characterized by persistent respiratory symptoms and airflow limitation due to exposure of noxious particles or gases. It is a common, preventable and treatable disease [1]. COPD has two components; emphysema and chronic bronchitis. Due to bronchoconstriction and early small airway collapse in the emphysema phenotype, the air cannot expire sufficiently from the lungs in expiration and causes excessive lung aeration (hyperinflation) over the years. The effects of medical and other treatments (such as smoking cessation, beta-2 agonists, anticholinergic drugs, oral-inhaled steroids, oxygen therapy and pulmonary rehabilitation) are very limited in reducing this hyperinflation. In the National Emphysema Treatment Trial (NETT) study, surgical lung volume reduction (LVRS) has been considered a therapeutic alternative for patients with advanced obstructive lung disease. Despite higher mortality rates (16% at 30 days, %7,9 up to 90 days), there were significant improvements in exercise capacity and health-related quality of life durable to 3 and 4 years, especially in the upper lobe predominant/low baseline exercise capacity subgroup. Mortality was mostly seen in patients with homogeneous emphysema. In the 2016 Cochrane review of 11 studies, especially in selected individuals with upper lobe predominant emphysema/low baseline exercise capacity, LVRS has clinically meaningful benefits in lung function, exercise

capacity, quality of life, survival and was seen as most effective compare to medical therapies. But with the early postoperative complications, high mortality rates and expensive of surgery have led to the development of bronchoscopic LVR (BLVR) [2]. In BLVR primary purpose is to reduce excessive lung aeration. In chronic bronchitis patients, it is about providing permanent dilatation and reducing excess mucus production by providing remodeling without creating scar tissue on the bronchial mucosa. Appropriate patient selection is the most important factor affecting the success of bronchoscopic treatment (Table 1) [3]. In patients who continue to suffer from shortness of breath despite optimum medical treatment, smoking cessation and pulmonary rehabilitation, interventional bronchoscopic treatment options are recommended at the level of evidence B [1].

Bronchoscopic Treatment Options In Chronic Obstructive Airway Diseases

- 1) Bronchial blockers
 - One-way valves (EBV Zephyr, IBV Spiration, EB Miyazawa)
 - Spigots (EB Watanabe Spigots)
- 2) Treatments effective at the level of lung parenchyma
 - Tissue adhesive (Sealant, AeriSeal)
 - Coil (PneumRx)
 - Thermal vapor ablation (Vapor, InterVapor)

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Broncho Muco Cleaner Balloon

This treatment option, which has been on the agenda for the last few years, is based on the principle of clearing the mucus from the bronchial system and attempting to perform bronchial dilatation, especially in COPD patients with chronic bronchitis. The procedure is completed in an average of 60-90 minutes under general anesthesia and an average of 2-3 balloons are used for the treatment of a patient. It is aimed to necrose hyperplastic goblet cells, drain excess mucus, and clean with bronchoscopic aspiration by repeatedly inflated and lowered the balloon placed in the bronchial lumen under a certain pressure. Although reducing the mucus load in the bronchi creates a feeling of relief in patients, doubts about long-term effects continue. Results of a total of 188 patients who received bronchodilator balloon therapy were published in November 2018. It was stated that the oxygen requirement of the patients decreased significantly after the treatment, and there was a statistically significant improvement in the respiratory function test parameters and effort capacities at the end of the first week and first month [30]. For routine clinical use of this new form of treatment, large scale randomized controlled trials are needed.

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