

News & Comments

Tiotropium bromide; evident therapeutic consequences on patients

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COPD (Chronic Obstructive Pulmonary Condition) is a chronic disease in which airflow is restricted. Dyspnea, cough, copious sputum, and decreased appetite are among the symptoms, which occur in recurrent bouts. COPD is a progressive and irreversible disease that harms patients' quality of life and can lead to chronic respiratory failure, sleep apnea-hypopnea syndrome, pulmonary heart disease, and even death. COPD is a prevalent respiratory disease that poses a major threat to human health and has several complications. COPD is currently the fourth biggest cause of death worldwide, wreaking havoc on patients' quality of life and putting a strain on their families. Proteases/antiproteases and the imbalance between plasma proteins are widely acknowledged as one of the key pathogenic causes underlying COPD.

Anticholinergic medications compete with acetylcholine for choline receptor binding on the smooth muscle surface, causing smooth muscle contraction to be blocked. As a result, they've been routinely used to treat COPD. Anticholinergic medications are significantly more effective than receptor agonists in dilating the bronchus of COPD patients, with fewer adverse effects. Tiotropium bromide has several advantages for treating people with stable COPD.

Sixty-eight patients with stable COPD who were treated at hospital between October 2013 and October 2015 and met the diagnostic criteria of the COPD Committee, Respiratory Society, Chinese Medical Association's Guidelines for Diagnosis and Treatment of COPD established in 2013 were included.

Exclusion criteria includes significant cardiovascular and cerebrovascular illnesses, liver and renal dysfunction, and other systemic diseases; history of other chronic lung diseases; and use of glucocorticoids, bronchodilators, and other medicines within 24 hrs before starting this study.

Once a day, the treatment group inhaled one capsule of tiotropium bromide (18 g/10 sec) from Jiangsu Chia Tai Tianqing Pharmaceutical Group Co., Ltd., China. The placebo was given to the control group at the same dose and frequency as the treatment group. Both groups were given therapy for six months, with Ventolin spray being administered as needed.

The SGRQ score of stable COPD patients treated with tiotropium bromide decreased significantly, while the 6MWD and pulmonary function increased significantly, implying that after tiotropium bromide treatment, cough, expectoration, and wheezing symptoms, as well as body hypoxia, were relieved, pulmonary function, exercise capacity, and quality of life improved, and COPD development was delayed. The outcomes could be related to tiotropium bromide's expectorant and antitussive



properties, which can help COPD patients improve their lung function by reducing sputum, relieving cough, and partially alleviating respiratory muscle fatigue. Tiotropium bromide, on the other hand, can widen the airways, reduce COPD patients' dyspnea, and improve their clinical symptoms and exercise endurance. There was no significant statistical difference in serum levels of MMP-9, TIMP-1, or MMP-9/TIMP-1 between the two groups before treatment ($p>0.05$), according to this study.

In conclusion, tiotropium bromide can considerably enhance dyspnea, exercise capacity, and pulmonary function in COPD patients. It has a positive effect on stable COPD patients, and the mechanism is thought to be connected to improve airway remodelling. It is worth clinical promotion and application.

JOURNAL REFERENCE

Li, Z., L. Zhou, H. Bi, Q. Zhang, X. Xu, Y. Liu and H. Qiu, 2022. Effects of tiotropium bromide on patients with chronic obstructive pulmonary disease. *Int. J. Pharmacol.*, 18: 215-220.

KEYWORDS

COPD, anticholinergic medications, Tiotropium bromide, airway remodeling, pulmonary function, therapeutic consequences

