

Breaking through restricting bottleneck for better asthma control

Ding Zhu, Chao Zhang, Huahao Shen, Songmin Ying

Department of Respiratory and Critical Care Medicine, Second Affiliated Hospital, Institute of Respiratory Diseases, Zhejiang University School of Medicine, Hangzhou, Zhejiang Province, China

Asthma is characterized by chronic bronchial inflammation, airway hyperresponsiveness induced by specific and nonspecific stimuli, reversible bronchial obstruction, and airway remodeling. Although standard asthma medications were applied, there are approximately 55% of patients with asthma still suffer from poorly or uncontrolled disease.^[1,2] Uncontrolled asthma is associated with a worse life quality and a higher risk of asthma-related hospitalization and mortality, which results in heavy health care and socioeconomic burden.^[3,4] Various factors contribute to the low control rates, such as less responsiveness to pharmacologic therapy, complications of other diseases, incorrect use of inhaler devices, poor medication compliance, and smoking.^[5,6] In recent years, a lot of researchers have focused on making new exploratory interventions to improve asthma management and control.

Bronchial thermoplasty (BT) is one of such interventions. According to the stepwise approach to asthma control recommended by Global Initiative for Asthma (GINA) guidelines in 2014 and 2015, BT can be applied in the fifth-level treatment plan. Similar to oral corticosteroids and omalizumab, BT is becoming a routine treatment to patients with severe asthma with persistent symptoms and the evidence was upgraded to level B. BT targets primarily to decrease airway smooth muscle (ASM) by using radiofrequency. As is widely known, ASM play an important pathologic role in airway remodeling. The hypertrophy and hyperplasia of ASM may partly explain the less responsiveness to pharmacologic therapy in patients with uncontrolled asthma.^[7,8] So far, several studies have

demonstrated significant improvements in clinical asthma outcomes of BT. These improvements mainly includes symptom control, reduction in emergency department visits and hospitalization rates, decreased healthcare cost, improved life quality, reduced dosage of corticosteroids (inhaled or oral) and long-acting beta-agonists (LABA), and reduction in working days or school days lost number.^[9-11] Additionally, pooled analysis indicates that BT is well tolerated and demonstrated as an acceptable safety profile in both short- and long-term safety^[9,11-13]. In summary, BT should be considered as a new treatment option for patients with uncontrolled severe asthma at present. Further well-designed randomized clinical trials need to concentrate more on patient selection so that the work could be targeted on potentially benefited subgroups.

In the population of uncontrolled asthmatics, the existence of associated comorbidities may disrupt the effect of asthma-related therapy and limit asthma symptom control. These comorbidities, which includes postnasal drip, allergic rhinitis (AR), nasal polyps, gastroesophageal reflux disease, and obstructive sleep apnea (OSA), are well accepted as inducing factors of asthma. Although standard therapy was taken, asthma would not also be well controlled and may easily reoccur if these disorders could not be cured, even leading to difficulty in performing de-escalation therapy. Therefore, to this special population with asthma, we recommend to develop individualized treatment strategies as proposed by GINA 2014. For example, AR and asthma were regarded as “one airway, one disease.”^[14] Previous studies demonstrated that among patients with asthma and concomitant AR,

Address for Correspondence:
Dr. Huahao Shen and Songmin Ying,
Department of Respiratory and Critical
Care Medicine, Second Affiliated
Hospital, Institute of Respiratory
Diseases, Zhejiang University School of
Medicine, Hangzhou 310009, Zhejiang
Province, China.
Email: huahaoshen@zju.edu.cn (Huahao
Shen); yings@zju.edu.cn (Songmin Ying)

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those who were treated for AR had a significantly lower risk of subsequent asthma-related events (emergency department visits/hospitalizations)^[15]. Thus, combined therapy in the both upper and lower respiratory tracts are recommended in patients with asthma and AR. Similarly, although OSA can increase the risk for worse asthma control in patients complicated with asthma, the CPAP therapy have great impact on asthma outcomes.^[16] As a result, CPAP and standard anti-asthma therapy should be combined in these patients.

Finally, as a chronic disease, the asthma management and follow-up are issues that cannot be neglected. During drug inhalation, the usage and dosage/frequency of medications are cornerstones of successful treatment. Unfortunately, it has been reported that the overall prevalence of correct inhaler technique was only 31%, on an average^[17]. Hence, incorrect usage of inhaler devices and poor medication adherence were the main causes of treatment failure and low control rates in patients with asthma. In this case, patient education seems to be particularly important. However, traditional patient education for out-patients is often limited to clinics, usually leading to poor self-management and medication compliance. Many patients could not correctly understand and master the usage of inhaler devices within a short period of clinic visit time. Thus, they experience relatively lower treatment efficacy. To resolve this dilemma, in recent years, positive interventions including video of using inhaler devices, pharmacist telephone, electronic monitoring, and public platforms such as WeChat are used instead of text message and booklet were used as educational and follow-up measures to educate and instruct patients with asthma.^[18-20] Using these novel interventions as part of treatment and asthma management, not only the disease control and therapy effects have been improved, but also public awareness of asthma diseases and medications have been increased.

With the progress and efforts of the above aspects, we believe that the bottleneck for asthma control will be broken through soon. Therefore, better control rate of asthma will be achieved.

Conflict of Interest

None declared.

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