

# Asthma treatment in 2020: Promise and caution

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## **ABSTRACT**

Asthma is a chronic inflammatory airway disease frequently misdiagnosed or underdiagnosed. The players in the inflammatory pathway are many and they include IgE antibodies, mast cells, eosinophils, dendritic cells and T-helper cells. Acute inflammation leads to bronchoconstriction, chronic inflammation leads to episodes of exacerbations and when the inflammation is persistent, airway remodeling occurs which results in persistent airflow obstruction. The diagnosis of asthma requires demonstration of airway obstruction, variability or detection of eosinophilic inflammation or atopy. The most common investigation is spirometry with demonstration of positive reversibility test. The understanding of asthma has evolved over the years. Treatment options have expanded to include new inhaler devices, biologics and bronchial thermoplasty. The first biologic was Omalizumab introduced in 2003. Since then, there are now many biologics such as Reslizumab, Benralizumab and Dupilumab. In 2019, the GINA guidelines for asthma made changes in the treatment recommendations of mild asthma. Whilst inhaled SABA has been the first-line treatment for asthma for the last 50 years, it is no longer recommended. Regular SABA use is associated with adverse events and adverse clinical outcomes. The recent SYGMA study showed budesonide/formoterol as-needed to be equivalent to budesonide maintenance BID in preventing severe exacerbations with a lower steroid load. In asthma, airway inflammation involves both the large and small airways. The prevalence of small airway involvement is around 50 to 60%. (4) Studies have shown that particle size plays a part in the deposition in the airways with smaller particle size having a greater deposition. The main types of inhaler devices available are manually-actuated pressurized metered-dose inhalers (conventional puffer), breath-actuated pressurized metered-dose inhalers, dry powder inhalers (multi-dose and capsule types) and mist inhalers. The different inhaler devices and the correct steps to use are adequately outlined in our Malaysian Asthma Clinical Practice Guidelines. There are 5 biologics approved by the FDA for use in severe asthma. They have different mechanism of action, indication and dosages. The evidence suggests a benefit in terms of decrease in exacerbation rates and improvement in quality of life. It is important to remember that asthma is a heterogeneous disease and the underlying inflammation needs to be targeted with a move towards earlier use of inhaled corticosteroids and the move away from SABA monotherapy. With the advent of many different types of inhalers with different particle sizes, health care workers need to be familiar with these devices and its components in order to make the correct choice. In addition, inhaler technique should be assessed and corrected at regular intervals during clinic visits.