

Immunologic Therapies for Asthma

Prevalence of bronchial asthma is about 15% in children and 5% in adult population. In the majority of cases the disease can be well controlled with the international management guidelines using inhaled corticosteroid either alone or in combination with long acting beta-agonists and or leukotriene receptor antagonists. However, up to 10% of the patients with asthma still remain poorly controlled in spite of optimal standard therapy. These patients with severe asthma suffer poorly controlled symptoms along with frequent and severe exacerbations of asthma and are at risk of asthma-related death. In addition, this group of asthma has co-morbidities secondary to steroid use, and utilize majority of the health care costs related to the disease. Therefore, there is a significant need for the additional effective therapeutic modalities in this group of asthma patients.

Asthma is a chronic inflammatory disorder of the airways that involves many types of cells and cellular elements. Recent progress in the understanding of bronchial asthma pathophysiology and development of molecular technology has led to the emergence of novel immunologic therapies for asthma. These immunologic therapies have not only had an impact on the treatment approach itself, but have also shed light on the mechanisms of asthma. In this presentation, I will provide an overview of the immunologic therapies currently employed and under investigation, as well as a brief review of the current concepts of asthma pathophysiology. The molecules under consideration are monoclonal antibodies, small-molecule inhibitors of cytokines or cytokine receptors, CpG oligonucleotides, and proteins involved in regulatory T cell signaling. It is evident that asthma is a group of heterogeneous diseases that share clinical features. Thus, the efficacy of the immunologic therapies is inevitably dependent on the distinct inflammatory pathway that is activated in each patient and whether these particular pathways are blocked by a specific immunotherapeutic modality. More precise asthma classification based on pathologic processes is essential for the success of these therapies.

The novel immunologic therapies will be of significant benefit to patients with severe asthma that is not controlled by the current standard therapy. Further clinical trials are needed to clearly establish the efficacy and safety of these immunologic therapies before they are incorporated into routine clinical practice