Commentary

The future of asthma treatment: Emerging technologies and therapies

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DESCRIPTION

A proper diagnosis of asthma typically involves a combination of clinical history, physical examination, and diagnostic tests. Given that asthma symptoms can overlap with other respiratory conditions like Chronic Obstructive Pulmonary Disease (COPD) or bronchitis, it is crucial for healthcare providers to rule out other causes before diagnosing asthma. During the initial evaluation, a healthcare provider will ask about the patient's medical history, including any family history of asthma or allergies. They will also inquire about the frequency and pattern of symptoms, as well as potential triggers. A physical exam will assess breathing patterns and listen for signs of wheezing or reduced breath sounds. Spirometry is the most common test used to diagnose asthma. It measures lung function by assessing how much air the patient can inhale and exhale, and how quickly. This test helps determine the presence of airflow obstruction, which is a key feature of asthma. A peak flow meter measures the maximum speed of exhalation, which can help assess the degree of airflow limitation. Regular monitoring of peak flow can help identify asthma exacerbations and track the effectiveness of treatment. Since asthma is often triggered by allergens, allergy testing may be conducted to identify specific allergens that could be contributing to the condition. Skin tests or blood tests can help determine sensitivities to common allergens like pollen, mold, pet dander, and dust mites. In some cases, a meth choline challenge test may be used to confirm the diagnosis of asthma. This involves inhaling a substance that causes narrowing of the airways in individuals with asthma. A spirometry test is then conducted to assess lung function before and after exposure to the substance. Asthma treatment is aimed at reducing inflammation, improving airflow, and preventing asthma attacks. Although there is no cure for asthma, a variety of medications and strategies are available to control symptoms and improve quality of life. Asthma medications are generally divided into two categories: long-term control medications and quick-relief (rescue) medications. These medications are taken daily to reduce inflammation and prevent symptoms. These are the most effective anti-inflammatory medications used to control asthma. They reduce swelling and mucus production in the airways. These medications block chemicals called leukotrienes that cause airway inflammation and constriction. These bronchodilators help relax the muscles around the airways, making it easier to breathe. They are often used in combination with inhaled corticosteroids. Monoclonal antibodies, such as omalizumab and mepolizumab, are used for severe asthma that does not respond to standard treatments. These biologics target specific molecules involved in the inflammatory process. These medications provide immediate relief by relaxing the muscles around the airways, allowing for easier breathing during an asthma attack. These are fast-acting bronchodilators that provide quick relief during asthma attacks. These medications can also help to open the airways and are sometimes used in combination with SABAs. An asthma action plan is a personalized strategy developed by the healthcare provider to help individuals manage their asthma. It includes information about daily medications, triggers, warning signs of worsening asthma, and when to seek emergency care. Patients are encouraged to monitor their symptoms and peak flow measurements regularly to ensure optimal control.

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CONFLICT OF INTEREST

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