

Running Head: IMPORTANCE OF MECHANISM OF ACTION FOR COPD AND ASTHMA

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Title: Wk 5 Discussion - The Importance of Mechanism of Action for COPD and Asthma

Instructions: answer the following questions in a minimum of 250 words: which core defect of asthma does a saba address? which core defect of asthma does an inhaled corticosteroid (ics) or ics/laba address? what is important for the patient to know? why? what is the difference in mechanism of action (moa) of a short-acting beta agonist (saba) vs. a long acting beta agonist (laba) vs. a long-acting muscarinic antagonists (lama). please explain. why would you never prescribe a laba as monotherapy for a patient with asthma?

Focus: this is a discussion post. please cite materials as necessary.. this is a master program so the work should reflect it.

## IMPORTANCE OF MECHANISM OF ACTION FOR COPD AND ASTHMA

### The Importance of Mechanism of Action for COPD and Asthma

Student's name

Module

Module code

#### **Core defect of asthma addressed by SABA**

Short-Acting Beta Agonists (SABAs) are prescription drugs in form of inhaler, pills, injection or syrup, for asthmatic patients. They are a quick relief of breath shortness and wheezing. Their mode of action is by relaxing the smooth muscles of the airways leading to

## IMPORTANCE OF MECHANISM OF ACTION FOR COPD AND ASTHMA

the lungs after constriction during an asthmatic attack. Therefore, this action allows free flow of air into the patient's lungs, hence alleviating spasms (Vanfleteren et al., 2018).

### **Core defects addresses by inhaled corticosteroid (ICS)**

The core defect of asthma addressed by inhaled corticosteroids is suppression of airway inflammation. They present glucocorticoid activity that switch off the multiple inflammatory genes activated by an asthmatic attack. This mechanism reverses stabilization of lysosomes and capillary permeability. Onset of their action is gradual; hence have a long term effect. Patients achieve maximum benefit with consistent use (Vanfleteren et al., 2018).

### **Critical information patients should know**

Patients living with asthma can successfully manage the symptoms through medications among other measures to control the symptoms and other exacerbations (Osadnik and Singh, 2019). For this to be effective, patients ought to be in a position to recognize symptoms of an asthmatic attack and the role of various medications. This is attributed to the varying mode of action of asthma medicines. Therefore, it is vital for the patient to know which medications can alleviate asthmatic symptoms quickly. Additionally, it is fundamental for the patients to practice different techniques of using the various inhalers and understand the triggers of asthma to avoid or limit exposure (World Health Organization, 2017).

### **Comparison of SABA, LAMA and LABA mode of action**

The different medications for control of asthma present varying modes of action. SABAs are used during an asthma attack for relief of asthma symptoms or prevent exacerbations caused by exposure of triggers if used shortly before exposure. Long-Acting

## IMPORTANCE OF MECHANISM OF ACTION FOR COPD AND ASTHMA

Beta Agonist (LABA) reduces inflammation in the airways, similar to SABA, but their effect last longer. Long Acting Muscarinic Antagonist (LAMA) acts by blocking cholinergic tone and reflex bronchoconstriction mediated by vagus nerves. Additionally, they inhibit mucus production and cause clearance of mucus hence reducing blockage of airways (Vanfleteren et al., 2018).

### **Rationale against LABA monotherapy for a patient with asthma**

Monotherapy with LABA is contraindicated in asthma treatment because they have been cited to cause tolerance associated with down regulation of beta 2 adrenoreceptors. Therefore, this aspect has been shown to cause increased risk of mortality to patients with asthma (Vanfleteren et al., 2018).

### **References**

Osadnik, C. R., & Singh, S. (2019). Pulmonary rehabilitation for obstructive lung disease. *Respirology*, 24(9), 871-878.

## IMPORTANCE OF MECHANISM OF ACTION FOR COPD AND ASTHMA

Vanfleteren, L., Fabbri, L. M., Papi, A., Petruzzelli, S., & Celli, B. (2018). Triple therapy (ICS/LABA/LAMA) in COPD: time for a reappraisal. *International journal of chronic obstructive pulmonary disease*, 13, 3971.

World Health Organization. (2017). A handbook on how to implement mBreatheFreely, mHealth for COPD and asthma.