

# Common Drugs Used in Iran for Asthma Treatment

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**Abstract-** Asthma is a common chronic inflammatory disease of the airways is thought to be caused by a combination of genetic and environmental factors. Treatment of acute symptoms is usually with an inhaled short-acting beta-2 agonist and oral corticosteroids. The occurrence of asthma has increased significantly since the 1970s. In 2011, 235–300 million people globally were diagnosed with asthma, and it caused 250,000 deaths. There are different types of drugs used for asthma treatment. In this study we introduce common drugs used for asthma treatment in Iran.

**Index Terms-** Asthma, Common Drugs, Iran

## I. INTRODUCTION

**A**STHMA is a common chronic inflammatory disease of the airways [1]. The exact cause of asthma isn't known. But is thought to be caused by a combination of genetic and environmental factors [2]

The airways are tubes that carry air into and out of your lungs. People who have asthma have inflamed airways. The inflammation makes the air ways swollen and very sensitive. The air ways tend to react strongly to certain inhaled substances. When the airways react – the muscles around them tighten. This narrows the airways, causing less air to flow into the lungs. Cells in the air ways might make more mucus than usual. Mucus is a sticky thick liquid that can further narrow the air ways [3].

Symptoms can happen each time the airways are inflamed. When symptoms get more intense and more symptoms occur, you're having asthma attack that also is called flareups or exacerbations. Common symptoms include wheezing, chest tightness, shortness of breath and coughing that often occurs at night or early in the morning [3].

Asthma medicines can be taken in pill form but most are taken using a device called an inhaler. Asthma medicines include [4], [5]:

- Inhaled steroids
- Bronchodilators
- Mast cell stabilizers
- Leukotriene Modifiers

In this study we introduce common drugs used for asthma treatment in Iran.

## II. MATERIAL AND METHODS

This is a cross-sectional descriptive study carried out during spring 2015 in Tehran (Capital Iran) to investigate the

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common drugs used for allergy treatment. For this purpose we prepared a questionnaire including questions on the drugs prescribed by medical doctors for allergy treatment. Referring to pharmacies and based on prescriptions we collected the data. We also used interview to obtain information by interviewing with GPs and physicians.

## III. RESULTS

There are different drugs used for asthma treatment in Iran. The most common drugs are:

### Bronchodilators

- Pulmicort (tablets-inhaler)
- Symbicort (inhaler)

### Mast cell stabilizers include:

- Intal (inhaler)
- Cromolyne (drop)
- Nasal crom (Nasal spray)

### Leukotriene Modifiers:

- Accolate (zafirlukast) (tablets)
- Singulair (Monteleukast) (tablets-chewable)

Salbutamol-Salmeterol (inhaler-tablets-syrup) and Montelukast are common drugs used in Iran for asthma treatment (Figures I and II).



Fig I. Salbutamol



Fig II. Montelukast

#### IV. DISCUSSION

Salbutamol stimulates  $\beta_2$  adrenergic receptors which are predominant receptors in bronchial smooth muscle of the lung [6]. Stimulation of  $\beta_2$  receptors leads to the activation of enzyme adenylyl cyclase that form cyclic AMP (adenosine-mono-phosphate) from ATP (adenosine-tri-phosphate). This high level of cyclic AMP relaxes bronchial smooth muscle and decreases airway resistance by lowering intracellular ionic calcium concentrations. Salbutamol relaxes the smooth muscles of airways, from trachea to terminal bronchioles [7]. High level of cyclic AMP are also inhibits the release of bronchoconstrictor mediators such as histamine, leukotriene from the mast cells in the airway [8]. Salbutamol is usually a well tolerated drug The most common side effects are fine tremor, anxiety, headache, muscle cramps, dry mouth, and palpitation [9].

Montelukast is a CysLT<sub>1</sub> antagonist; it blocks the action of leukotriene D<sub>4</sub> (and secondary ligands LTC<sub>4</sub> and LTE<sub>4</sub>) on the cysteinyl leukotriene receptor CysLT<sub>1</sub> in the lungs and bronchial tubes by binding to it [8]. Side effects include gastrointestinal disturbances, hypersensitivity reactions, sleep disorders, headache and increased bleeding tendency, in addition to other generic adverse reactions. Drowsiness is also a common side effect [10].

#### V. CONCLUSION

We have shown that different drugs are used in Iran for asthma treatment but Salbutamol and Montelukast are commonly used drugs.

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