

EDITORIAL

Epigenetic Play an Important Role in Regulation of Asthma Symptoms with Environmental Factors Help

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Asthma is a common chronic respiratory problem that is characterized by recurring attacks of impaired breathing, of varying intensities, bronchoconstriction, symptoms, airway inflammation, and airway hyper-responsiveness that occurs in all age groups. Given the high asthma prevalence and mortality in developed countries, this association would have important public health implications (Athari *et al* 2014, Kumar and Athari 2014). Since even patients with asthma have evidence for inflammation of the large and small airways, and the severity of the inflammation often correlates with the severity of the problem. This is a main public health problem and reduces life quality that involved specially children. Therefore prevention, recognition and treatment of asthma are necessary for all populations. Asthma has genetic susceptibility background and some genes have main role in initiation of asthma (Garcia and Athari. 2015, Athari. 2014).

Epigenetic play an important role in the regulation of a wide variety of genes, which includes the genes involved in the inflammation and allergic asthma. Epigenetic modifications can alter the structure of DNA itself, such as DNA methylation, or alter the structure of chromatin through alterations to scaffolding proteins, such as histones. Once established, these changes in DNA methylation and histone modifications can be led to a state whereby specific gene expression patterns are determined by the epigenetic profile (Islam, 2008, Baccarelli *et al* 2009, Choudhry *et al* 2005).

Asthma and allergy are complex diseases and non-Mendelian patterns of inheritance and many gene loci are thought to be involved. Mendelian inheritance, heritable changes to gene expression can be caused by epigenetic changes. These epigenetic modifications explain how they interact with environmental factors and how environmental impacts can alter the immune response, leading to inappropriate signaling and allergy. This may be particularly valid when accounting for the effects of environmental stressor such as air pollution on enhancing the risk of asthma. There are a diverse number of epigenetic mechanisms which are involved in the regulation of gene expression. This could change gene expression in some area of DNA. Although these do not alter the DNA sequence the changes in DNA structure can be inherited across generations (Athari, 2014, London, 2007, Perera *et al* 2009).

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