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Asthma: A common chronic inflammatory disease

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DESCRIPTION

Asthma is a chronic lung disease which cause inflammation in the bronchioles, narrow the airways and characterized by airflow obstruction and bronchospasm, coughing, chest tightness, wheezing, shortness of breath referred as asthma attack [1,5,9,16,27,32,52,69,73,78]. The major risk factors of asthma are allergens like pollens, dust, smoking, mites in bedding and chemical irritants [63,85]. The disease may also trigger by extreme emotion, anger, fear, cold air and physical exercise and also affects distal lung parenchyma [10,25,31,33,35,75,76]. Laryngopharyngeal reflux is one of the suspected exacerbating factors for developing asthma and studies are going on to understand the real association between these two common diseases [44]. Even endocrine disorders like obesity and diabetes influence the prevalence of asthma [55,61,68,71].

World health organization has proposed different groupings and phenotypes of the severe asthma and differentiated into two categories: treatment resistance severe asthma (TRSA) and difficult to treat severe asthma (DTTSA). TRSA includes patients using maximum levels of inhaled medications and not achieving adequate levels of control whereas DTTSA is a controllable severe asthma [21].

Asthma is a treatable disease affecting more than 300 million people worldwide but if it is poorly controlled can become life threatening [2,30,41,43,47,70,86]. It is reported that about one-fifth of the workers diagnosed with “occupational asthma” are affected with irritant induced asthma [15].

Asthma is one of the major epidemics whose prevalence is kept on increasing in recent decades [3,39,50,66,74,78]. With direct and indirect economic expenditures the economic burden of asthma is estimated as 56 billion dollar annually [4,51,65].

Allergic asthma is one of the chronic diseases of paediatrics, affected by genetic and environmental factors and has become very common in recent decades [23,26,42,78,84]. Allergic asthma is triggered by different stimuli; in general environmental factors are the major cause of allergy and asthma

development [6,7,54,59,82,87,88]. It was analyzed that cough variant asthma is a precursor of typical asthma as about 30% of patients with cough variant asthma develops typical asthma but not atopic cough [20].

It is found that the childhood exposure to allergens increase the prevalence of developing asthma. Maternal smoke during pregnancy, parental smoke, damp house and viral infections are the major causes of paediatric asthma [6,36-38,45,56,64,79,81]. Recent evidence suggests that exposure to high levels of allergen during early life might contribute to the increasing prevalence of allergic disease [53]. A high incidence of Der p allergen was found in early infancy as a risk factor for developing asthma. One-fifth of the patients with diagnosis of asthma are found to be suffering from irritant induced asthma [8]. Food allergy found to be casually involved in development of asthmatic response in some patients with bronchial asthma [24,48,49,80]. The food allergy related asthmatic response can be prevented by pre-treatment with disodium cromoglycate [24]. As reported by Fida et al. among reductive age women early menarche is mostly related with a risk of developing onset asthma [62].

The currently used medication to treat this chronic disease in both adults and children are nebulizer devices, inhalers and sometimes oral medication. Glucocorticosteroids is the mostly recommended asthma therapy but have limitations because of corticosteroid resistance in some patients and their severe adverse effects [19,29,40,46,57,67]. It is found from many studies that the common reason for inadequate control of the disease is non-compliance with medication regimens and poor techniques to utilize the inhalers. The risk of developing asthma is unsure but depends on the genetic and environmental factors [7,83]. Salbutamol can be an effective treatment of the disease but it is associated with many undesirable side effects as tachycardia and hypokalemia [60].

The recent asthma guidelines focuses on current control and to reduce future risk [14]. In further exploring the treatment and self-management of asthma, many studies have supported that the two most common reasons for inadequate control of the condition are non-compliance with medication regimens and poor technique with utilizing inhaled medications [9,58].

Yoga, the non-pharmacotherapy seems to be effective in maintenance of regular pulmonary function, physical activity and prevention of chronic symptoms as reported by Vishvender et al. Hath yoga helps the breath to link the various part of the body to the mind so that they behave as one functional unit which in turn effective in management of the asthma [11].

As reported by Randhawa et al. Bronchodilators are the main treatment of both the obstructive lung diseases; asthma and chronic Obstructive Pulmonary Disease. According to Mincarini et al. Specific Immunotherapy (SIT) and Subcutaneous Immuno-therapy (SCIT) can be used to treat allergic asthma associated with rhinitis [12,13]. It shows significant improvement in asthma symptoms but cannot be recommended as a single therapy [13,17]. Armengot et al. says that the association between asthma and chronic rhinosinusitis with nasal polyps is more common and a severe disease in patients with higher tissue eosinophilia [18]. Obstetric patients with asthma can develop a life threatening asthmaticus, so, they always represent as a challenge for intensive care specialist and require the management expertise of several specialists [22]. Mickleborough and Lindley reported the approach of using marine oil supplement for managing exercise-induced bronchoconstriction and hyperpnea-induced bronchoconstriction which may play an important role in mitigating airway inflammation [28].

Pulmonary rehabilitation programs are beneficial for asthematic patients as the regular practice of Arabic exercises shows many physical and physiological beneficial effects to asthmatic patients [72].

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