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Asthma Control Challenges: Global and National Perspectives

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Asthma remains a significant global health problem affecting some 300 million individuals globally and is increasing in developing countries (1-3). Increasing prevalence, morbidity and mortality of asthma over the past decades as an epidemic threat (4) has caused a remarkable expenditure and reduction in quality of patients' lives (5) and their care givers, and a great economic burden for communities (6). Immunopathologically, asthma is a highly heterogeneous disease with numerous phenotypes influenced by complex genetic and environmental effects, and an evolving understanding of the key cell types and soluble mediators that orchestrate the immune response (7).

The results of two studies- the International Study of Asthma and Allergies in Children (ISAAC) and the European Community Respiratory Health Survey (ECRHS)- showed significant geographical variations in the prevalence of asthma (8). ISAAC in its different phases (I to III) has had a great achievement in studying epidemiology, risk factors and burden of asthma and allergies around the world (9). A number of other studies suggest an association between higher asthma morbidity, mortality rates and geographical areas of lower socio-economical standing.(8) In fact, disparity is especially striking for certain medical illnesses that are particularly amenable to management outside the hospital, including asthma and diabetes (10). Poverty and disparities in health care as status of insurance, level of education, income and race/ethnicity are relevant to more prevalence and severity of asthma in children of young mothers (11), under-diagnosis and under-treatment of asthma (12) The data from ISAAC phase III also provides high quality evidence regarding the risk factors for asthma and some allergies as rhinoconjuctivitis and eczema (13). Changes in life style including sedentary behavior, particularly increased television viewing time (five hours or more), high-fat diets and reduced intake of antioxidant vitamins, passive tobacco smoke and indoor/outdoor allergens and pollution are among the different risk factors resulting in increased prevalence of asthma and allergies in past 50 years globally (7, 13). In some polluted megacities of the developing countries, such as Tehran, up to 35.4% of the children who have been educating, suffered from the symptoms of asthma (3).

Diagnosing, treating and controlling asthma are still challenges for physicians and health care authorities at the national and international levels (14). Considering the increasing prevalence of asthma and its burden, ob-

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Implication for health policy/practice/research/medical education:
Considering the increasing prevalence of asthma and its burden, obtaining an optimal control of the disease is mandatory.

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taining an optimal control of the disease is mandatory, and to achieve this goal, national guidelines have been published (15, 16). The Global Initiative for Asthma (GINA) Since 1992 has released international guidelines to underline physicians' role in asthma management and care, emphasizing that a proper control of the disease depends on doctor's ability and experience in recognizing symptoms (considering possible differential diagnoses), defining the severity level (also by evaluating the respiratory function, as recommended by international guidelines), prescribing the correct medication and educating the patient and his/her family (17, 18).

Hospital admissions are a strong marker for asthma severity, increased risk of readmission and death (19, 20). However, there is evidence that many hospital admissions could be prevented if children and their family members have good general knowledge of asthma symptoms, management and prevention. Educational interventions are of particular benefit in patients having previous history of emergency department visits or hospitalizations (19, 20). Actually, lack of education of asthmatic children and their parents is a major risk factor for hospital admission in severe cases (21, 22). Among asthmatic patients, 10-20% are of the severe phenotypes and more than half of all economic costs are attributed to the patients with the most severe disease needing hospitalization (12, 23). This is the good reason that GINA's goal is to achieve a 50% reduction in hospital admissions due to asthma over the next 5 years (23, 24). Despite high prevalence and burden of asthma and improvements in treatments used to control the disease, there is not any universally accepted strategy for the prevention of asthma yet (25). The primary prevention of asthma may be possible through interventions focused on the types of early environmental exposures that predispose children to the disease or speed up its progression (25).

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