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Pediatric asthma mortality and recent advances in asthma education

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Abstract

Asthma is the foremost chronic disease in kids with prevalence of pediatric asthma close to 10% in United States as per recent CDC figures. Asthma has been cumulative since the early 1980s in all age, sex and racial groups. Asthma still causes substantial morbidity and humanityinternationally and negligibleupgrading has been seen in key outcomes over the last decade despite increasing treatment costs. This evaluation recaps recent advances in the management of asthma in children and adolescents. It emphases on the need for modifiedaction plans based on heterogenous asthma pathophysiology, the use of the terminology '*asthma attack*' ended exacerbation to instill widespread understanding of severity, and the need for every attack to trigger a organized appraisal and focused strategy. The authors discuss problems in diagnosing asthma, accuracy and use of Fractional exhaled nitric oxide both as second line test and as a method to monitor treatment adherence or guide the choice of pharmacotherapy. The authors deliberate acute and long-term management of asthma. Asthma treatment areas are to minimalize symptom burden, prevent attacks and (where possible) decrease risk and impact of progressive pathophysiology and adverse outcomes. The authors deliberate pharmacological organization; optimal use of short acting β_2 agonists, long acting muscarinic antagonist (tiotropium), use of which is relatively new in pediatrics, allergen specific immunotherapy, biological monoclonal antibody treatment, azalide antibiotic azithromycin, and the use of vitamin D. They also deliberate electronic monitoring and adherence devices, direct observation of therapy *via* mobile device, temperature controlled laminar airflow device, and the importance of considering when symptoms may actually result from dysfunctional breathing rather than asthma.Children with heavy asthma have a high degree of respiratory morbidity despite treatment with high doses of inhaled corticosteroids and are therefore very difficult to treat. This review will deliberate phenotypic and pathogenic aspects of severe asthma in childhood, as well as remaining knowledge gaps. As a group, children with simple asthma have a number of distinct phenotypic features compared to children with mild-to-moderate asthma. Clinically, children with stark asthma are distinguished by greater allergic sensitization, increased exhaled nitric oxide. These results are escorted by physical airway changes and augmented and dysregulated airway irritation and oxidant stress which may explain the differential nature of corticosteroid responsiveness in this population. Because adults with heavy asthma themselves are a heterogeneous group, current efforts are focused on improved definition and sub-phenotyping of the disorder. While the clinical relevance of phenotyping approaches in severe asthma is not yet clear, they may provide important insight into the mechanisms underlying the disorder.

In US, one in ten individual dies of asthma daily. Many of these deaths are avoidable with proper treatment and care. Asthma disproportionately affects low-income, minority and inner city populations with higher morbidity and mortality rates. Much of the risk of asthma in minority children can be attributed to local irritants, including secondhand cigarette smoke, mold, cockroaches, dust mites, rats, mice, pets and air pollution. Increased recognition of the occurrence of sudden, unexpected deaths is a compelling reason to search for the mechanisms of death. This is particularly true since it has been apparent that even patients with mild asthma appear to be at risk for such an outcome. Unfortunately studies of mechanisms in these patients have been difficult due to logistic reasons and lack of autopsy. There has been very limited literature reflecting on pediatric asthma mortality and so far there has been only eight reports of programs set up to investigate individual asthma deaths (5 in UK and one each in New Zealand,

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Australia and US). Although fresh and better treatments for asthma become obtainable each year, the newest information on these new treatments often is not communicated effectively to patients. These communiqué problems lead to ineffective organization of the disease. The Physician Asthma Care Education (PACE) package was shaped to enhance action of asthma and the physician-patient partnership. The PACE program is a two-part communicating, multi-media instructive seminar to improve physician mindfulness, ability, and use of message and therapeutic techniques for reducing the effects of asthma on children and their families. The PACE curriculum provides education for clinicians on how to employ the best current therapies for asthma. It also deliversvalued information on how to connect more effectively with patients and support patients' management efforts, helping them to better utilize the clinicians' references.