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Preface xv

Anne B. Chang

System Based Approach

Respiratory Noises: How Useful are They Clinically? 1

Craig Mellis

Although clinicians place considerable weight on the identification of the various forms of noisy breathing, there are serious questions regarding both the accuracy (validity) and the reliability (repeatability) of these noises. To avoid diagnostic errors, clinicians need to consider the whole constellation of symptoms and signs, and not focus on the specific "type" of noise. Given the high error rate with "parent-reported wheeze" there is a need to reexamine the extensive literature on the epidemiology of wheeze in infants and young children, because parent-reported wheeze is unconfirmed by a clinician. It is obvious we need more high-quality research evidence to derive better evidence on the clinical utility of these noises, and their natural history.

Cough 19

Anne B. Chang

The management of cough in children should be etiologically based. This requires that all children with cough should be carefully evaluated and managed differently than adults because the etiologic factors and treatment in children are significantly different than that in adults. In all children with cough, exacerbation factors should be sought and intervention options for cessation advised or initiated. Parental expectations and specific concerns should also be sought and addressed.

Perceptions and Pathophysiology of Dyspnea and Exercise Intolerance 33

Miles Weinberger and Mutasim Abu-Hasan

Dyspnea is a complex psychophysiologic sensation that requires intact afferent and efferent pathways for the full perception of the neuromechanical dissociation between the respiratory effort attempted and the work actually accomplished. The sensation is triggered or accentuated by a variety of receptors located in the chest wall, respiratory muscles, lung parenchyma, carotid body, and brain stem. The sensation of dyspnea is stronger in patients with higher scores for anxiety and has been reported in patients with anxiety disorders with no cardiopulmonary disease. These observations demonstrate the importance of cerebral cognition in this complex symptom. Ten cases are presented that illustrate different clinical manifestations of dyspnea.

Chest Pain and Chest Wall Deformity

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Janaki Gokhale and Steven M. Selbst

Chest pain and chest wall deformities are common in children. Although most children with chest pain have a benign diagnosis, some have a serious etiology for pain, so the complaint must be addressed carefully. Unfortunately, there are few prospective studies to evaluate this complaint in children. Serious causes for chest pain are rare, making it difficult to develop clear guidelines for evaluation and management. The child who appears well, has a normal physical examination, and lacks worrisome history deserves reassurance and careful follow-up rather than extensive studies. Multicenter studies are needed to better define this important symptom.

Recurrent Respiratory Infections

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Andrew Bush

The child who has recurrent infections poses one of the most difficult diagnostic challenges in pediatrics. The clinician faces a two-fold challenge in determining first whether the child is normal or has a serious disease, and then, in the latter case, how to confirm or exclude the diagnosis with the minimum number of the least invasive tests. It is hoped that, in the absence of good-quality evidence for most clinical scenarios, the experience-based approach described in this article may prove a useful guide to the clinician.

Disease Based Approach**Upper Respiratory Tract Infections (Including Otitis Media)**

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Peter S. Morris

Upper respiratory tract infections (including otitis media) are the most common illnesses affecting children. Most illnesses are mild and resolve completely without specific treatment, but the frequency of infection and association with fever and constitutional symptoms creates significant distress for the child and the family. By understanding the evidence available from high-quality studies, the clinician can advise the families on appropriate action. The goal of this article is to support clinicians in answering the following questions: (1) What happened to children with these conditions when no additional treatment was provided? (2) Which interventions have been assessed in well-designed studies? (3) Which interventions have been shown to improve outcomes? (4) How large is the overall benefit?

Acute Bronchiolitis and Croup

119

Mark L. Everard

Croup and acute bronchiolitis are common forms of virally induced respiratory disease in infancy and early childhood. There is good evidence that corticosteroids can ameliorate disease severity and alter the natural history of symptoms in patients who have croup and that temporary symptomatic benefit can be obtained from the use of nebulized adrenaline.

The principle weakness when reviewing therapeutic interventions for acute bronchiolitis is the lack of a clear diagnostic test or definition. Current evidence suggests that oxygen is the only useful pharmacologic agent for correcting hypoxia.

Pneumonia and Other Respiratory Infections

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Sarath C. Ranganathan and Samatha Sonnappa

Pneumonia is a leading killer of children in developing countries and results in significant morbidity worldwide. This article reviews the management of pneumonia and its complications from the perspective of both developed and resource-poor settings. In addition, evidence-based management of other respiratory infections, including tuberculosis, is discussed. Finally, the management of common complications of pneumonia is reviewed.

Bronchiectasis in Children

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Gregory J. Redding

Bronchiectasis is a chronic disease of the conducting airways that produces persistent productive cough, recurrent respiratory infectious exacerbations, and obstructive lung disease in children and adults. This article focuses on the grading and recommendations for chronic therapies of bronchiectasis caused by cystic fibrosis (CF)- and non-CF-related conditions. The scope of this article is to focus on outpatient treatment and not include as-needed treatment for mild or severe pulmonary exacerbations associated with bronchiectasis.

Aspiration Lung Disease

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Fernando M. de Benedictis, Virgilio P. Carnielli, and Diletta de Benedictis

The term aspiration lung disease describes several clinical syndromes, with massive aspiration and chronic lung aspiration being at two extremes of the clinical spectrum. Over the years, significant advances have been made in understanding the mechanisms underlying dysphagia, gastroesophageal function, and airway protective reflexes and new diagnostic techniques have been introduced. Despite this, characterizing the presence or absence of aspiration, and under what circumstances a child might be aspirating what, is extremely challenging. Many children are still not adequately diagnosed or treated for aspiration until permanent lung damage has occurred. A multidisciplinary approach is mandatory for a correct diagnosis in addition to timely and appropriate care.

Asthma in Childhood

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Paul D. Robinson and Peter Van Asperen

Management decisions for pediatric asthma (in patients younger than 12 years of age) based on extrapolation from available evidence in adolescents and adults (age 12 years and older) is common but rarely appropriate. This article addresses the disparity in response between the two age groups, presents the available pediatric evidence, and highlights the important areas in which further research is required. Evidence-based recommendations for acute and interval management of pediatric asthma are provided.

Congenital Airway Lesions and Lung Disease

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Ian Brent Masters

Structural upper and lower airway disorders and parenchymal disorders are uncommon in pediatric practice, but many pediatricians will encounter them and be responsible for the ongoing care of these patients. Pediatricians need to be cognizant of these diagnoses because, even though management of these disorders generally lacks an evidence base, existing principles of good care surrounding accurate diagnosis, classifications of severity, judicious use of investigations, medication, and surgical approaches are essential to good outcomes.

Obstructive Sleep Breathing Disorders

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Chung Ting Au and Albert Martin Li

Obstructive sleep apnea (OSA) is increasingly recognized in children. There is accumulating robust evidence to support early diagnosis and treatment of this condition. The purpose of this review is to provide an update on the epidemiology, clinical features, complications, and treatment of childhood OSA. The authors have also proposed an easy-to-follow flowchart on the management of children with snoring or sleep disturbance for clinical use by busy pediatricians.

Chronic Respiratory Failure and Neuromuscular Disease

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J. Declan Kennedy and A. James Martin

The outlook for children with respiratory complications of neuromuscular disease has improved significantly in the past 15 years. This has been the result of many advances in clinical care, including improved monitoring of lung function and hypoventilation during sleep; coordinated respiratory care by experienced physicians with access to specialized respiratory services, especially physiotherapy; and, most importantly, the widespread introduction of noninvasive ventilation.

Domiciliary Oxygen for Children

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Ian M. Balfour-Lynn

Domiciliary oxygen is used increasingly in pediatric practice, and the largest patient group to receive it is ex-premature babies with chronic neonatal lung disease. Because of a scarcity of good evidence to inform clinicians, there is a lack of consensus over many issues, even those as fundamental as the optimum target oxygen saturation. Nevertheless, many children benefit from receiving supplemental oxygen at home, particularly because it helps to keep them out of the hospital.

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