tion between uncheck T-helper 2 responses and the development of atopy. As the authors suggested, mechanisms may include a deficiency in the regulatory activity of CD4^+CD25^+ T cells in atopic individuals or an activation and expansion of CD4^+CD25^- T cells in response to allergen exposure to a degree that overcomes the regulatory capacity of the CD4^+CD25^- T cells. Although additional study will be necessary before these results can be applied clinically, augmentation of CD4^+CD25^- T cell suppression of the T-helper 2 response may represent a future therapy for atopic disease.

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DIAGNOSIS AND MANAGEMENT

CLASSIFYING ASTHMA SEVERITY IN CHILDREN: MISMATCH BETWEEN SYMPTOMS, MEDICATION USE, AND LUNG FUNCTION


Purpose of the Study. To determine if lung-function measures are consistent with levels of asthma severity as defined by the National Asthma Education and Prevention Program/Expert Panel Report 2 guidelines.

Study Population. Children (n = 219) aged 5 to 18 years (mean age: 10.1 ± 3.4 years) with asthma attending 2 academic medical center subspecialty clinics for routine evaluation of asthma.

Methods. Parents completed questionnaires regarding asthma medication use and symptom frequency. Children performed spirometry. Symptom frequency (daytime, nighttime, and exertional) was used to classify severity of asthma according to the National Asthma Education and Prevention Program/Expert Panel Report 2 guidelines. Asthma severity was also categorized by medication use suggested in the guidelines. For inhaled corticosteroid (ICS) use, the average daily microgram dose actually taken was classified as low, medium, or high based on the guidelines. Patients receiving low-dose ICS or another controller medication (leukotriene receptor antagonists, cromolyn, nedocromil, or theophylline) alone were assigned mild persistent asthma status. Patients receiving low-dose ICS plus 1 additional controller medication or a medium dose of an ICS alone were classified as moderate persistent. The use of moderate-dose ICS with additional controller medication, the use of high-dose ICS, or the use of >2 controller medications resulted in a classification of severe persistent asthma (Table 1).

Results. Patients tended to report very good levels of asthma symptom control, with 68.1% of patients being classified as intermittent or mild persistent based on symptom frequency. However, because the majority of patients were receiving controller therapy, the distribution of severity assignments was shifted toward more severe disease when medication use alone was considered.

Conclusions. The authors concluded that in children, asthma severity classified by symptom frequency and medication usage does not correlate with forced expiratory volume in 1 second (FEV1) categories defined by National Asthma Education and Prevention Program guidelines. FEV1 is generally normal even in severe persistent childhood asthma.

Reviewer’s Comments. As the authors’ noted, “classification of asthma severity is complex and is influenced by the variability of disease severity within a patient over time as well as being confounded by current asthma treatment.” Rather than trying to hit the moving target of asthma severity classification, I believe it is preferable to focus on achieving good asthma control, defined by normal and/or personal-best spirometry and rare need for albuterol. If assignment to a severity category is still desired, this can be based on the amount of medication required to achieve good asthma control.

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PEAK FLOW MONITORING FOR GUIDED SELF-MANAGEMENT IN CHILDHOOD ASTHMA: A RANDOMIZED CONTROLLED TRIAL


Purpose of the Study. To determine if the addition of peak expiratory flow (PEF) recordings to a symptom-based self-management plan improved outcome in schoolchildren with asthma.

Study Population. Children (n = 90), aged 7 to 14 years with physician-diagnosed asthma, who are on regular inhaled corticosteroid therapy.

Methods. Children were randomized to receive a management plan based on either symptoms alone or symptoms plus PEF readings for 12 weeks. Children were asked to perform twice-daily spirometry (using an electronic recording spirometer that revealed PEF results only to the symptoms-plus-PEF group) and record a symptom diary. The child and the main caregiver were taught self-management at a training session. A printed plan, based on the child’s best previous PEF and incorporating the child’s own medication regime, was color coded: green: PEF > 70%, few symptoms (carry on as usual); yellow: PEF 50% to 70% after β-2 agonist (double-inhaled corticosteroid as well as taking additional β-2-agonist therapy); red: PEF < 50% after taking additional inhaled β-2 agonist, severe symptoms (commence oral prednisolone and/or seek medical help).

Results. There were no differences between groups in mean symptom score or in spirometric lung function, PEF, quality-of-life score, or reported use of health services. During acute episodes, children responded to changes in symptoms by increasing their inhaled steroids at a mean PEF value of >70% of best so that overall PEF did not contribute to this important self-management decision.

Conclusions. This trial does not support the hypothesis that the routine incorporation of PEF monitoring into guided self-management protocols for schoolchildren with asthma improves the outcome. Knowledge of PEF did not enhance self-management even during acute exacerbations.


TABLE 1. Distribution of Patients by Level of Severity

<table>
<thead>
<tr>
<th>Basis for Severity Classifications</th>
<th>Symptoms, %</th>
<th>Medications, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild intermittent</td>
<td>39.3</td>
<td>18.0</td>
</tr>
<tr>
<td>Mild persistent</td>
<td>28.8</td>
<td>26.7</td>
</tr>
<tr>
<td>Moderate persistent</td>
<td>15.1</td>
<td>20.4</td>
</tr>
<tr>
<td>Severe persistent</td>
<td>16.9</td>
<td>35.0</td>
</tr>
</tbody>
</table>

Forced expiratory volume in 1 second (%) predicted did not differ by level of asthma severity.
Classifying Asthma Severity in Children: Mismatch Between Symptoms, Medication Use, and Lung Function

John M. Kelso

*Pediatrics* 2005;116:558

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