In conclusion, it must be stated that the condition of CEC-MLC, though rare and associated with a grim prognosis, is amenable to effective palliation (as was determined in our small number of treated patients).

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Early Gene-Environment Interaction Into Asthma and Allergic Rhinitis Comorbidity

To the Editor:

Although there is undoubtedly a close relationship between asthma (A) and allergic rhinitis (AR) in individuals, variations in the geographic distribution and epidemiologic associations of these two diseases have been described. Yet, risk factors for the comorbidity of A and AR have been scarcely investigated.

The diagnosis of A and AR was assessed using a reduced version of the American Thoracic Society-Division of Lung Disease-78 standardized questionnaire in a population-based sample of 3,930 first-degree relatives obtained through 1,267 index children (age range, 3 months to 6 years) who were recruited during 1 month (1996) in four Italian cities (ie, Brindisi, Cagliari, Livorno, and Naples) (mean birth rate, 1.3%) through public health centers providing compulsory vaccinations. Familial aggregation of the comorbidity was investigated to estimate the relative influence of genetic factors and shared environmental events by using the generalized estimating equation type II model, which allows the taking of the nonindependence of data between first-degree relatives into account.

Data support the hypothesis of the alliance of genes and environment in the comorbidity of A and AR (Table 1). The aggregation of the comorbidity between AR and A was significantly more frequent among siblings than between parents and offspring. No significant aggregation was seen between parents. Relationships that were at variance were observed among parents who had AR only and among siblings who had A only.

The highest odds ratio (OR) that was found between siblings was 7.1 (95% confidence interval [CI], 2.9–24.0) by the father (OR, 2.9; 95% CI, 1.2 to 6.5) also was observed seems to reinforce such a suggestion. A differential risk of transmission that is associated with the maternal phenotype already has been observed in the case of A. Maternal transmission of an allergy could be explained by stronger maternal heritability, environmental events that affect the fetus, and the shared physical environment of mother and child.

Our findings provide epidemiologic evidence that early gene-environment interaction is plausible in patients with comorbidity of A and AR.

Table 1—Genes and Environment in A and AR*

<table>
<thead>
<tr>
<th>Relationship</th>
<th>A Only</th>
<th>AR Only</th>
<th>Both A and AR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offspring</td>
<td>9.9%</td>
<td>3.1%</td>
<td>4.9%</td>
</tr>
<tr>
<td>PP</td>
<td>2.7%</td>
<td>7.4%</td>
<td>6.9%</td>
</tr>
<tr>
<td>OR</td>
<td>1.9</td>
<td>3.4</td>
<td>1.5</td>
</tr>
<tr>
<td>95% CI</td>
<td>0.6–6.5</td>
<td>1.5–6.2</td>
<td>0.4–6.2</td>
</tr>
<tr>
<td>PO</td>
<td>2.2</td>
<td>4.6</td>
<td>3.6</td>
</tr>
<tr>
<td>95% CI</td>
<td>2.0–5.4</td>
<td>2.9–7.3</td>
<td>1.6–8.3</td>
</tr>
<tr>
<td>SS</td>
<td>2.0</td>
<td>7.1</td>
<td>8.5</td>
</tr>
<tr>
<td>95% CI</td>
<td>0.9–4.2</td>
<td>2.6–19.7</td>
<td>3.4–21.3</td>
</tr>
</tbody>
</table>

*PP = parents; PO = parents-offspring; SS = siblings. ORs > 1 with 95% CI > 1 indicate the existence of a statistically significant aggregation between members of the family.

In conclusion, it must be stated that the condition of CEC-MLC, though rare and associated with a grim prognosis, is amenable to effective palliation (as was determined in our small number of treated patients).

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