May 14th, 11:30 AM - 1:30 PM

Maternal Education and Cockroach Sensitization in Asthmatic Children

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Maternal Education and Cockroach Sensitization in Asthmatic Children

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Methods

- Environmental allergies are a trigger for allergic asthma.
- Sensitization to pests, such as cockroaches, is associated with more acute asthma visits.
- Our goal: To evaluate how various social determinants of health, particularly maternal education, were associated with sensitization to pests in asthmatic children.

- Children’s Mercy Kansas City’s environmental health department collected data during home assessments for families with asthmatic children.
- Demographics collected included household income, maternal education, and type of insurance.
- Maternal education level was categorized as less than high school, high school, college, and graduate.
- 167 participating families had maternal education level and German cockroach IgE values.

- A Tobit regression model was developed that left-censored patients with IgE values <0.35 ku/L, which was the lowest limit of detection.
- For this model, the dependent variable, German cockroach IgE, was used to measure sensitization to pests.
- Independent variables included income, mother’s education, insurance, and home allergen levels for Alternaria (mold), cockroach, and mouse.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>(95% Conf. Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>3.84</td>
<td>2.86</td>
<td>-1.88 - 9.56</td>
</tr>
<tr>
<td>Mother’s education</td>
<td>-3.38</td>
<td>1.45</td>
<td>-6.29 - -0.47</td>
</tr>
<tr>
<td>Insurance</td>
<td>.05</td>
<td>1.88</td>
<td>-3.71 - 3.81</td>
</tr>
<tr>
<td>Alternaria mold allergen level</td>
<td>.14</td>
<td>.10</td>
<td>-.06 - .34</td>
</tr>
<tr>
<td>Cockroach allergen level</td>
<td>-1.34</td>
<td>3.33</td>
<td>-8.00 - 5.33</td>
</tr>
<tr>
<td>Mouse allergen level</td>
<td>-.16</td>
<td>.95</td>
<td>-2.07 - 1.74</td>
</tr>
</tbody>
</table>

Data suggests association between home environment and maternal education level, which may impact health of asthmatic children.

Larger prospective studies minimizing study dropouts are warranted.