Validation of a Population Based Brief Allergy Symptom Questionnaire

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ABSTRACT

Rationale: The purpose of this study was to assess the validity of a population-based allergy symptom questionnaire in epidemiology and clinical allergy studies. Method: Briefly described is a study that evaluated the validity of a brief questionnaire in a population-based sample. The questionnaire was designed to screen for allergies in a single, simple, and brief manner. The questionnaire was administered by mail to a community sample. Results: The questionnaire was completed by 2,000 respondents, which represents a 50% response rate. The questionnaire was found to be valid and reliable. Conclusion: The questionnaire is a valid and reliable tool for assessing allergies in a population-based sample.

METHODS

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DEFINITIONS

Sensitivity: Proportion of subjects who reported presence of a symptom of those that tested positive to an allergen.
Specificity: Proportion of subjects who reported absence of a symptom of those that tested negative to an allergen.
PPV: Proportion of subjects who reported the presence of a symptom that tested positive to an allergen.

PPV, SENSITIVITY AND SPECIFICITY

Overall SPT Positive Results

<table>
<thead>
<tr>
<th></th>
<th>Positive</th>
<th>Negative</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease</td>
<td>No Disease</td>
<td>Disease</td>
<td>Specificity</td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>True Positive (TP)</td>
<td>False Positive (FP)</td>
<td>True Negative (TN)</td>
<td>False Negative (FN)</td>
</tr>
<tr>
<td>Negative</td>
<td>False Positive (FN)</td>
<td>True Negative (TN)</td>
<td>False Negative (FP)</td>
<td>True Positive (TP)</td>
</tr>
</tbody>
</table>

PPV: Positive Predictive Value

PPV = TP / (TP + FP)

SENSITIVITY: TP / (TP + FN)

SPECIFICITY: TN / (TN + FP)

CONCLUSIONS

The 3 symptom questions most predictive of a positive SPT are:
- Shortness of Breath – Animal
- Stuffy Nose – Animal
- Eczema

Telephone, in-person and mailed surveys have an almost identical PPV in identifying adults who will have a positive SPT.

DATA COLLECTION

- Birth certificates used to identify parents of newborns.
- Parents screened for allergy symptoms in schools, in person, or mail.
- Parent with symptoms (0-5 weeks) of skin prick test (SPT) for *
  - Cat & Dog
  - Dust Mite (Dermatophagoides pteronyssinus, Dermatophagoides farinae)
- German Cockroach (Periplaneta americana)
- Beetle (Cockroach, Drosophila, House Fly, Staphylococcus aureus, Candida, Saprobein, and S. aureus)

- Bacterial安东尼 (ABC) made by AIA/ABC**
- Comparison made of symptoms and SPT.