Latex Allergy amongst Healthcare workers at Mankweng Hospital: Limpopo

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Introduction

- No conflict of interest declared
- Worldwide epidemic of IgE mediated latex allergy was reported nearly 30 years ago
- It is a common occupational disease amongst healthcare workers using latex gloves
- It affects about 5-17% of these workers
- Caused by repeated exposure to latex protein
- Powdered gloves facilitate inhalation of latex protein

Latex reaction presentation

- Might present as contact dermatitis

- Delayed hypersensitivity reaction (Type IV) to accelerators and softeners such as carbamates and thiourams

- IgE mediated (Type I) reaction which is referred to as latex allergy
Study objectives

- As no previous prevalence study had been done and reported in Limpopo, we wanted to fill that gap
- Main aim of the study was to document latex allergy prevalence at the Mankweng hospital
- The secondary objective was to document the disease spectrum of affected staff members
Study population

- Permission was obtained from our Ethics committee (PREC)
- The study was conducted between March and December 2011
- A cross-sectional descriptive study with an analytical component
- Healthcare workers in latex ‘high-risk’ areas were studied
Sample size and questionnaire

- A self-administered questionnaire was completed by participants.
- The questionnaire was tested in a pilot study.
- Each participant scored his/her symptoms according to inclusion criteria on the questionnaire.
- 200 questionnaires were distributed with 158 participants responding (79% response rate).
Latex allergy confirmatory tests

1. **Blood test**
   - We used Lancet Laboratory for blood testing
   - Blood was collected for ImmunoCAP testing (Phadia, Uppsala, Sweden)
   - Serum specific IgE to latex and its main allergens (rHev b 1, rHev b5 etc.) was determined
   - A value of >0.35 kU/L was regarded as positive
Latex allergy confirmatory tests

1. Skin prick test

- A skin prick test was done on subjects who tested negative to the blood test
- A standard latex extract (500mcg/ml protein concentrate) (ALK-Abello) was used
- Histamine (10mg/ml) was used as a positive control
- Saline was used as a negative control
Latex allergy confirmatory tests

- The testing solutions were introduced on the volar area of the forearm
- Reading of results was done after 15 minutes
- A positive test was interpreted as a wheal $\geq 3$mm of the negative control
Results

- Glove related symptoms were present in 59 (37%) participants
- 12 of these participants refused testing and 2 died
- ImmunoCAP IgE was positive in 7 participants
SPT was positive in 5 (13%) of the 38 participants that were negative to the blood test.

The prevalence of latex allergy in the sample was 8.3% (12/144).
## Clinical symptoms in respondents

<table>
<thead>
<tr>
<th>Latex Number: 12</th>
<th>Symptomatic but latex allergy test negative Number: 33</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disease</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td>Rhinitis</td>
<td>12</td>
</tr>
<tr>
<td>Asthma</td>
<td>6</td>
</tr>
<tr>
<td>Contact dermatitis</td>
<td>3</td>
</tr>
<tr>
<td>Anaphylaxis</td>
<td>1</td>
</tr>
<tr>
<td>Abdominal pains</td>
<td>1</td>
</tr>
<tr>
<td>Urticaria</td>
<td>1</td>
</tr>
<tr>
<td>Angioedema</td>
<td>1</td>
</tr>
</tbody>
</table>
Diagram 1: Clinical symptoms in respondents
Latex Allergy and Sensitization according to work station

<table>
<thead>
<tr>
<th>Workstation</th>
<th>No</th>
<th>% of latex allergic sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour ward</td>
<td>5</td>
<td>42</td>
</tr>
<tr>
<td>Out-patient department</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Intensive care unit</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Obstetrics gynaecology</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Obstetrics gynaecology and</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Casualty</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>100</td>
</tr>
</tbody>
</table>
Diagram 2: Prevalence according to work station

- Labour ward: 42%
- Out-patient department: 25%
- Intensive care unit: 17%
- Casualty: 6%
- Obstetrics and gynaecology: 8%
Discussion

- The prevalence in this sample of HCW was 8.3%
- The prevalence is higher than that at Dr George Mukhari of 4.2%
- The latter study was retrospective with only ImmunoCAP done.
- No SPT was done in their negative respondents
- The Limpopo prevalence would have been 4.9% if only blood test was done
Discussion

- If no SPT was done in our sample 3.5% would have been missed (5/144)
- Prevalence studies are variable in other South African teaching centres:
  - Groote Schuur: 9.2%, Red Cross: 5%, Tygerberg 20%, NHLS (JHB): 10.5%
- The prevalence in Limpopo is thus comparable with other South African centres
Discussion

- The commonest presenting symptoms were nasal in both latex allergic and latex allergy test negative participants (100% and 73% respectively).
- Asthma was the second most common in latex allergic participants at 50%.
- We suggest that in routine questioning of HCW’s for latex allergy, a high index of suspicion be attributed to asthma and allergic rhinitis sufferers.
Conclusion

- Study limitation was that not all departments were studied.
- Skin prick testing for latex allergy is superior to blood test in the diagnosis of IgE mediated allergy.
- Latex allergy prevalence is significant in healthcare workers in our hospital.
- This probably applies to the whole of Limpopo Province.
- A latex free environment is needed in certain instances.
THANK YOU
Acknowledgement

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QUESTIONS?

Questions are guaranteed in life; Answers aren't.