BACKGROUND AND OBJECTIVES

Exposure to certain fungi (molds) can cause human illness by 3 specific mechanisms: generation of a harmful immune response, direct infection by the organism or/and toxic-irritant effects from mold byproducts1. Molds are considered central elements in daily exposure of poultry workers and can be the cause of an increased risk of occupational respiratory diseases, like allergic and non-allergic rhinitis and asthma2.

Evaluate the exposure to different species of moulds in poultries and relate them with respiratory symptoms in poultry workers.

RESULTS

Regarding fungal load in the air from the seven poultry farms:

the highest value obtained was 24640 CFU/m³ and the lowest was 320 CFU/m³

Forty seven workers were analyzed with ages ranging from 17 to 71 years old.

This sample included 31 (66%) men and 16 (34%) women with a mean age of 44 ± 12 years old.

Our results are in line with previous findings suggestive of the "healthy worker effect" in population occupationally exposed to respiratory hazards, including allergens such as fungi1. The effects of fungal contamination on respiratory symptoms could be even more expressive, if there weren't a high prevalence of specific programs that address respiratory protection for all workers involved in poultry farming is recommended.

Table I. Quantification of the fungal air load in the seven poultries studied

<table>
<thead>
<tr>
<th>Poultry farm</th>
<th>N°</th>
<th>Highest value CFU/m³</th>
<th>Lowest value CFU/m³</th>
<th>Mean value CFU/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>3680</td>
<td>880</td>
<td>1603,3</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>4040</td>
<td>4040</td>
<td>4040</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>2520</td>
<td>640</td>
<td>1586,6</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>1000</td>
<td>320</td>
<td>706,6</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>24040</td>
<td>1280</td>
<td>14350</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>3600</td>
<td>2000</td>
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</tr>
<tr>
<td>7</td>
<td>2</td>
<td>8120</td>
<td>2620</td>
<td>5320</td>
</tr>
</tbody>
</table>

Twenty eight species/genera of fungi were identified, being:

- Scopulariopsis brevicaulis (39%) the most commonly isolated species
- Rhizopus sp. (30%) the most commonly isolated genus

From the Aspergillus genus:

Aspergillus flavus (74.5%) was the most frequently detected species

MATERIAL AND METHODS

Study: Descriptive, qualitative approach, cross-sectional

Sample:

- 7 Portuguese poultries with 47 workers were analyzed
- 27 air samples of 25 litters were collected through impaction method

Instruments for data collection:

- European Community Respiratory Health Survey questionnaire1 to evaluate the existence of clinical symptoms associated with asthma and other allergy diseases;
- Air sampling were collected through impaction method and was performed in pavilions’ interior and also outside premises, since this was the place regarded as reference.

CONCLUSIONS

Our results are in line with previous findings suggestive of the “healthy worker effect” in population occupationally exposed to respiratory hazards, including allergens such as fungi1. The effects of fungal contamination on respiratory symptoms could be even more expressive, if there weren’t a high turnover of the workers. Due to the high prevalence of respiratory symptoms, the implementation of specific programs that address respiratory protection for all workers involved in poultry farming is recommended.

REFERENCES

3. European Community Respiratory Health Survey. 2007 [Upgraded: 12 September 2007; Consulted at: 10 October 2010; Available at: http://www.ecrhs.org]

Some of these workers reported the first attack of asthma (66.6%) or rhinitis (42.9%) during the adult age, which may have been developed by occupational exposure.

These workers have an active asthma/rhinitis, since it were reported acute attacks in the last 12 months.

A high prevalence of respiratory symptoms in professionals without respiratory disease was observed, namely wheezing (22.7%), night attacks of cough (31.8%) and sneezing or runny nose without having a cold or flu (17.9%), suggesting an under diagnosed respiratory problems.

Some of the inquired workers refer an improvement of their respiratory ability, during the resting days and holiday.

There’s no existence of a statistically significant association between working in poultries and the presence of asthma/rhinitis or their relationship with the number of CFU/m³

However, who has rhinitis is exposed to a higher number of CFU/m³