CLADOSPORIUM CLADOSPORIOIDES ISOLATED FROM A AIR-CONDITIONED HOSPITAL ENVIRONMENT INDUCES LOCAL INFLAMMATORY RESPONSE

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Abstract:

Currently, the interest for the reactions caused by pathogenic fungi of air-conditioning environments has grown, mostly for those that can trigger severe respiratory complications on susceptible individuals. However, the inflammatory response profile caused by these fungi when inhaled by healthy individuals is not yet clarified. Thus, the purpose of this study was to evaluate in mice the profile of local inflammatory response after the inhalation of spores of the Fungi *Cladosporium cladosporioides*. Swiss mice (18–25g, n=8) of both sexes received instillations for the periods of 1, 3, 5, 10 and 15 days of a intranasal suspension (30 µl) of C. cladosporioides at the concentration of $2x10^5$ conidia/mL. The control group consisted of animals who received the vehicle only (0.1% de Tween 80 + NaCl a 0.9%). After 24h of the last instillation, the animals were euthanized to perform Bronchoalveolar Lavage (BAL). The counting of total and differential leukocytes present in the airways was performed by using the Neubauer Chamber and cytocentrifuges, respectively. The data was expressed as mean ± standard error of the mean, and analyzed by the t Student test. Values of $p < 0.05$ were considered statistically significant. All the procedures that used animals were approved by the Research Ethics Committee of the Federal University of Alagoas under the protocol n° 009515/2011-87. Animals that received conidia for 1 day or 3 days did not have modifications on the cellular profile of the airways. Nonetheless, after the 5th day of stimulus with conidia there was a significant increase on the total leukocytes. A similar profile of an increase in total leukocytes was observed after 10 days of exposure. The differential leukocytes count on the 3rd day of exposure unveiled that the lymphocytes population of the BAL had an increase of 57% when compared to the control. The monocytes of BAL showed a rise of 46% after the fifth day. Still, the neutrophils only were statistically high after the 10th day of exposure to the conidia. Porém, os neutrófilos somente mostraram-se estatisticamente elevados após o 10º dia de exposição ao conídio. It should be highlighted that every day the eosinophils count did not change. These data show that the inhalation of *C. cladosporioides* conidia in the long term induces the influx of inflammatory cells to the respiratory tract. Nevertheless, a low concentration of fungi spores is sufficient to trigger inflammatory processes in healthy individuals.

Keywords: *Cladosporium cladosporioides*, air-conditioned environments, inflammatory response

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