



POSTER PRESENTATION

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Systemic production of nitric oxide during severe asthma: immunomodulation by the helminth *echinococcus granulosus*

Manel Amri^{1*}, Merzak Gharnaout², Chafia Touil-Boukoffa¹

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Background

Several studies highlight the implication of nitric oxide (NO) in the airways inflammation during asthma. Moreover, asthma is thought to be associated with a systemic inflammation. However, little is known about the systemic production of NO in asthmatic patients. In this sense, our aim was to evaluate the *in vivo* and *ex vivo* production of NO in Algerian patients with severe asthma. Moreover, the effect of helminthes infection on asthma is still inconclusive. In this sense, the second part of this study aims to investigate the effect of the helminth *Echinococcus granulosus* on this production. This parasite causes cyst formation particularly in lungs and liver.

Method

The NO production was evaluated in sera and culture performed with mononuclear cells (PBMC) from asthmatic patients and healthy donors. We have also investigated the effect of laminated layer extract (LLs, outside layer of parasitic cyst) on NO production by the same cells.

Results

We observed that *in vivo* and *ex vivo* NO levels assessed in patients with severe asthma are higher than those observed in healthy donors. Interestingly, we found that LLs reduced NO production *ex vivo*. This result was confirmed using L-NMMA, an inhibitor of nitric oxide synthases (NOS).

Conclusion

Our data confirm the implication of NO in the pathogenesis of severe asthma. They also support the hypothesis

that helminthes infection prevents and/or modulates inflammation during inflammatory diseases like asthma. The potential effect of laminated layer to reduce the inflammation in the airways and to reduce the risk of severe asthma remains to be investigated in mouse model of asthma.

Authors' details

¹University of Sciences and Technology Houari Boumediene (USTHB), Department of Cellular and Molecular Biology (BCM), Algiers, Algeria. ²Rouiba Hospital, Department of pneumology, Algiers, Algeria.

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¹University of Sciences and Technology Houari Boumediene (USTHB), Department of Cellular and Molecular Biology (BCM), Algiers, Algeria
Full list of author information is available at the end of the article