International Conference 'Advances in Pneumology'
Bonn, 17-18 June 2011

REPRODUCIBILITY OF SENSITIVITY TO CAPSAICIN ASSESSED BY THE SINGLE BREATH INHALATION METHODOLOGY

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Introduction:
The hallmark of sensory hyperreactivity is an enhanced capsaicin induced cough reflex. It is not clear whether capsaicin sensitivity may be altered after acute challenge with irritants. Moreover, data on long term reproducibility are limited. The aim of our study was to assess capsaicin induced cough reflex on four occasions after exposure to different CO2-concentrations.
Methods:
16 healthy volunteers were exposed for 4 hours to CO2 in concentrations of 0 (clean air), 0.5, 1.0 and 2.0 Vol.-% in a repeated measures cross-over design. After exposure the capsaicin cough reflex was assessed by the single breath inhalation methodology according to ERS 2007 guidelines. After blank solutions, capsaicin doses (n= 12, range 0.49 to 1000 ?M) were administered from a nebulizer combined with a provocation system (Masterscope, software APS version 5.02). Doses were doubled every minute and the concentration causing five or more coughs (C5) was the end point.
Results:
The inter-individual C5 capsaicin responsiveness reflected a representative range (0.95 to 1000 ?M). On an intra-individual basis, a good reproducibility could be demonstrated within 4 weeks. There was no influence of CO2 challenge on the cough reflex. However, the first capsaicin test demonstrated a lower sensitivity independent of the level of CO2 applied. Aged individuals tended to demonstrate a lower sensitivity.
Conclusions:
Assessing the capsaicin cough reflex by single breath inhalation is reliable. However, the C5 dose might be underestimated on the first test occasion. Exposure to CO2 in concentrations up to 2.0 Vol.-% has no effect on sensory reactivity.