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Title: Persistence of the asthmatic response after exposure to ammonium persulfate in an animal model

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Body: Introduction: The aim of the study is to evaluate the persistence of respiratory symptoms after the end of exposure to ammonium persulfate (AP) in a validated model of occupational asthma (OA)¹. Material and methods: BALB/c mice received dermal applications of AP or dimethylsulfoxide (DMSO) on days 1 and 8. On day 15, they receive a single nasal instillation of AP or saline. The ventilatory function (Penh) was monitored by whole body plethysmography for 40 minutes after the nasal instillation. Bronchial hyperresponsiveness was assessed using methacholine provocation, while pulmonary inflammation was evaluated in BAL and total serum IgE was measured in blood, 1 day (day 16), 2 days (day 17), 3 days (day 18), 4 days (day 19), 1 week (day 23) or 2 weeks (day 30) after the single challenge on day 15. Results: There was a significant increase in bronchial hyperresponsiveness and the percentage of neutrophils (12%) 24h after the challenge with AP in AP-sensitized mice. The peak response in AHR and neutrophil inflammation was found 48h post-challenge. From then onwards, both the bronchial hyperresponsiveness and the percentage of neutrophils decrease gradually. Levels of total serum IgE increased significantly, reaching a peak three days after challenge, after which the levels return to baseline 23 days post-challenge. Conclusions: Overall, after two dermal sensitizations, followed by a single challenge, the asthmatic response decreases in time, with initially only decreases in respiratory and inflammatory responses, but later also in the immunological responses. Study funded by FIS PI080730 ¹De Vooght V et al. Thorax 2010;65:252-257.