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subjects showed positive methacholine challenge, PD20 ranging from 20 to 600 mcg. The study was performed outside the pollen season, when all symptoms free. All patients with allergic asthma showed a clinical and cytological reaction upon allergen specific challenge (30 min early phase reaction), while neither clinical or cytological reaction were elicited in non-allergic asthmatic subjects and healthy volunteers upon allergen challenge.

The study confirm the usefulness of ASCC in allergic inflammation and supports its employment also in patients with single history of allergic asthma.

P2464
Studies of Serum sIL-2R, Eosinophil Level and Pulmonary Function in Allergic Asthma after Antigen Provocation
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We performed antigen inhalation provocation tests in 31 allergic asthma patients and 12 normal subjects, and detected pre-provocation and post-provocation pulmonary function, meanwhile determined serum soluble interleukin-2 receptor (sIL-2R), eosinophils (Eos), total serum IgE (TiGE) and specific IgE (sIgE). The results: The post-provocation serum sIL-2R, Eos, TiGE and sIgE of asthma patients were higher than those of normal subjects and before provocation (P < 0.01), while FEV1, FVC, sGaw significantly decreased and Raw remarkably increased after provocation compared with those of normal subjects and before provocation (P < 0.01). Correlation analysis showed that sIL-2R, Eos were significantly negatively correlated to FEV1, sGaw and remarkably positively correlated to Raw. The above results indicated that sIL-2R was one of the marker of T cell activation and Eos infiltration played an important role in the changing of pulmonary function. sIL-2R, Eos number were closely related to the degree of bronchial hyperresponsiveness in asthma patients, and they might be regarded as objective evidences in clinical diagnosis and treatment.

P2463
Specific Airway Hyperresponsiveness in Mono-Sensitive Sicilian Patients with Allergic Rhinitis Correlates with Serum IgE Levels and Blood Eosinophil Levels during and out Pollen Season

Allergic rhinitis has been said to be a risk factor for the development of asthma as suggested by its frequent association with airway hyperreactivity. However, little is known about the effect of natural specific allergens exposure on the bronchial reactivity of mono-sensitive patients with rhinitis in the Southern Mediterranean area, in relation to skin reactivity to allergens, serum IgE levels and blood eosinophils. The significance of the association between allergic rhinitis, asthma and abnormal airway responsiveness with regard to the pathogenesis of asthma is unclear. For this reason, we have studied specific bronchial hyperreactivity, in patients with seasonal allergic rhinitis, with reference to the responsible allergen. The aim of the study was to correlate the bronchial responsiveness to methacholine in subjects with allergic rhinitis during and out the pollen season with serum IgE and blood eosinophil levels. Forty-two patients with clinical diagnosis of allergic rhinitis and mono-positive skin prick test (SPT) to pollen were enrolled in the study. Twenty patients suffered from seasonal rhinitis to Parietaria pollen, 15 patients to Graminifera pollen and 14 patients to Olea pollen. In all patients long function measurements (assessed as responses to methacholine), serum IgE and eosinophils were measured during and out pollen season.

During pollen season 16 out 49 rhinitis patients demonstrated values of PC20 FEV 1 above the asthma range whereas out pollen season only 8 patients were in the asthmatic range. By analysing the results with reference to the responsible allergen, during the pollen season 15 out 16 patients were Parietaria-sensitive and out pollen season 7 patients. Finally, in Parietaria-sensitive rhinitis bronchial responsiveness, both during and out pollen season, significantly correlated with serum IgE and with blood eosinophil counts.

Our results are consistent with the hypothesis that Parietaria is much important than Olea and Gramineae as a risk for developing nonspecific bronchial hyperreactivity. Therefore, it is important to evaluate whether it is necessary to reduce HDM in both mattress, bedding and floor covering or to concentrate in one or two of these sites for the treatment of adult asthmatics.

Methods:
In a double-blind placebo controlled intervention trial, the effect of different avoidance measures was assessed. After a baseline period of 4 weeks, 133 HDM-allergic patients with asthma (FEV1 pred: 86%, PRC01:72 mgH2O) were randomly allocated to an active and placebo sanitation group. The active sanitation consisted of treating floor covering with Acratrons<sup>®</sup> and encasing mattress and bedding with HDM-impermeable covers (Intervent<sup>®</sup>). The placebo sanitation consisted of treatment of the covering with water and the use of mattress covers, which were permeable to the house dust mite. At the start of the baseline and 8 weeks after the intervention separate dust samples were taken from the mattress, livingroom and bedroom floor with a vacuum cleaner (Philips TCS66, 1400 W). FEV1 and PC20 (bronchial hyperresponsiveness) were measured. By means of a pooled analysis and multiple linear regression (adjusted for age, gender and smoking) it was assessed which of the changes in Der p 1 of three sampling sites contributed most to the changes in FEV1 and PC20.

Results: The changes in Der p 1 achieved at the mattress (mg/g) and the bedroom floor (mg/cm<sup>2</sup>) contributed most to the changes of FEV1 in these adult asthmatics. Changes in Der p 1 concentration of the livingroom did not contribute to the changes in FEV1. There was no significant relation of the changes in Der p 1 at any of the three sites with changes in PC20.

Conclusion: Because reductions in Der p 1 at the bedroom floor and the mattresses had a positive effect on FEV1, avoidance measures at these sites are recommended in adult asthmatics. Reductions in Der p 1 at the livingroom floor had no influence on the FEV1, probably due to the fact that adults are less exposed to Der p 1 of the livingroom compared with children. It is therefore questionable whether avoidance measures of the livingroom floor should be recommended to HDM-allergic adults. Costs and effort will be saved in this way.

P2465
The Microfungus Trichoderma Viride Potentiate in Low Concentrations Histamine Release from Human Bronchoalveolar-Cells
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In the last years, there have been several reports of dampness and associated mould growth in buildings damaged by water. Cases of sick building syndrome including respiratory symptoms have been reported from persons exposed to indoor air in these buildings. Heavy growth of Trichoderma viride (TV) are often found in the building materials. Microorganisms may contribute to the symptoms by initiating mediator release and inflammatory reactions leading to mucosal damage. The capability of TV to trigger or potentiate histamine release (HR) from mast cells in the airways epithelium was therefore examined in cells obtained by bronchoalveolar lavage ( BAL-L) and compared with the response from peripheral blood. An equal HR was obtained in BAL-cells and basophils since TV in the range of 0.1 to 2 mg/ml induced HR from 3 to 20%. The HR was non-IgE-mediated, verified by unchanged basophil response when IgE were removed from the cell-surface. However, we low concentrations the fungus was able to potentiate HR from BAL-cells. A four-fold increase in IgE-mediated HR caused by anti-IgE antibody was only obtained at 500 ng/ml TV. This is in contrast to the high concentrations (10<sup>1–3</sup> ng/ml TV) needed to enhance basophil HR. These findings indicate that the mucosal mast cells are very sensitive to the fungus and inhalation of TV in sick buildings may therefore be harmful especially in astotic subjects.

Clinical and experimental aspects

P2466
Nitric Oxide: A Role in Maintenance of Systemic and Pulmonary Vascular Tone in Man
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The aim of his study was to examine whether the vasodilator nitric oxide (NO) has a role in maintaining basal vascular tone in normal man. 10 normal male volunteers 26 ± 5 years were studied on two separate occasions in a double blind, placebo controlled crossover study. They were randomized to receive either a continuous infusion (4 mg/kg/min) of N<sup>ω</sup>-monomethyl-L-arginine (L-NMMA) with a front loaded bolus (4 mg/kg) or volume matched placebo. Pulsed wave Doppler echo-

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