477 NEW ASPECTS ON INTERPRETATION OF UNSPECIFIC INHALATION PROVOCATION TESTS IN CLINICAL TRIALS

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When carrying out clinical studies on the treatment of bronchial hyperreactivity, the main target variables considered are generally parameterspecific provocation doses (PD). It has to be considered that these PD are not calculable for each patient in the same manner and for any fixed time. This restricts considerably the significance of such an examination. In order to make use to the greatest extent of the data collected, we applied an an evaluation model which analyses changes in function parameters in percent with a fixed dose of 300 µg nebulized methacholine quantity (MQ). The presented example is based on a reference controlled randomized double-blind clinical trial (n = 40 participants; 20 in each therapy-group). The therapy-group comparison (U-Test; n = 28) showed a p-value of p = 0,65. In 12 persons in whom the quantity of 300 µg MQ was not situated in the measuring range, the evaluation was not possible in an appropriate manner. Therefore we used a survival-time model in which the fact that the nebulized MQ of 300 µg is situated in the measuring range is considered as target point. The parameter values estimated for this dose correspond with the survival time. The patients in whom the target event is not given, are considered as censored. Now the therapy-group comparison (Logrank-Test; n= 40) showed a p-value of p = 0,015. This demonstrates the enormous bias due to the fact that patients suffering from a more pronounced disease who did not reach the target event are not included into the evaluation. The presented "survival-time model" includes all patients into the assessment and ascertains the conclusion of the trial.

478 AN EPIDEMIOLOGICAL STUDY OF SHORT-TERM HEALTH EFFECTS OF AIR POLLUTION IN PATIENTS WITH CHRONIC AIRWAY DISEASES

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From September 1988 till April 1991 279 patients with chronic airway diseases (e.g. asthma, bronchitis) aged between 40 and 70 years were observed in a temporally close-mashed manner to detect short-term health effects of acute ambient air pollution burdens. Important components of the data set comprising about 90,000 person days of observation are the daily measurement of the peak expiratory flow (PEF) and a diary medication and symptoms. For all study areas (Rhein-Ruhr, Sauerland, Salzwedel, Magdeburg, Wernigerode, Leipzig) mean concentrations of air pollution components and meteorological data are available on a diurnal basis.

For each of the five half-year periods the association between health variable and air pollution as well as meteorological conditions were analysed separately. During the winter months SO_2 and totally suspended particles (TSP) were considered as relevant air pollutants and during the summer months O_3, respectively. In the first step of a two step time series analysis a linear regression model with an autoregressive term was fitted individually for each patient to a health variable (PEF, symptom score, or use of bronchodilator) as the dependent varible and to an effect variable (SO_2, TSP, or O_3) and two meteorological variables (temperature, humidity) as the independent variables. In the second step the coefficients estimated in the first step were used to calculate statistics for estimating and testing possible health effects of air pollution and meteorological conditions for the whole patient collective as well as for subgroups.

During the winter seasons 1988/89 and 1989/90 the immission concentrations turned out to be comparatively low in the study areas in West-Germany, whereas in winter 1990/91 in East-Germany an up to tenfold increase occurred. Correspondingly, only in winter 1990/91 significant health effects (decrease of PEF and increase of complains) can be observed. These short-term effects are in the same magnitude as those for extreme wintry weather changes. Although high ozone levels were reached in summer 1989 and 1990, the statistical analysis reveals no clear health reactions of the patients being under conditions of the so-called summer-smog.

479 CT SCANNING OF PARANASAL SINUSES, TEST FOR AIRWAY HYPERRESPONSIVENESS TO CARBACHOL AND 24-HR ESOPHAGEAL PH MONITORING ARE MANDATORY IN THE DIFFERENTIAL DIAGNOSIS OF CHRONIC COUGH

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Objective: to evaluate the accuracy of CT scanning of paranasal sinuses, airway hyperresponsiveness to carbachol and 24 hs esophageal pH-monitoring for the differential diagnosis of chronic cough. **Patients:** a total of 41 consecutive out-patients referred for the differential diagnosis of chronic cough. **Setting:** Respiratory Disease Hospital associated with a University-based secondary care medical center. **Design:** a prospective analysis of a cohort of patients under Therapy whose data were stored prospectively over a 12 month period. **Measurements:** Patients underwent a series of 11 tests following a modified anatomical protochol: 1) meticulous questionary (100 questions) and physical examination; 2) Plain chest X-ray 3) Fiber-optic rhynoscopy; 4) Routine clinical laboratory test including IgE and differential counts of leucocytes of nasal secretion; 5) Skin tests for type I Allergy; 6) Prolonged (24 hr) esophageal pH monitoring; 7) CT scan of paranasal sinuses; 8) Fiber-optic bronchoscopy; 9) Carbachol bronchial challenge; 10) High resolution CT scan of the lung; 11) Response to specific therapy (30, 60, 90 days). **Results:** Employing the quoted criteria and the outcome upon specific therapy, the causes of chronic cough were determined in 36 of 41 patients (87,8%). Cough was due to a single condition in 17 patients (47,2%). Among the 19 patients (52,7%) with multiple causes, 7 (36,8%) had sinusites (and/or poliposis and/or concha bulhosa) (sinusitis and/or) associated with airway Hyperresponsiveness (AHR); 5 patients (26,3%) had concomitantly the three diseases; 1 patient (5,3%) had sinusitis (and/or) associated with gastroesophageal reflux (GER); 1 patient (5,3%) had GER associated with AHR.

In 5 cases (26%) bronchiectasis were considered the main cause of cough, though were always associated with sinusites and 2 cases had also AHR. Isolated causes of chronic cough were: Sinusites 4 patients (23,5%); Cough Variant Asthma in 4 patients (23,5%); GER in 4 patients (23,5%); Miscellaneous conditions in 5 patients (29,4%) including Sarcoidosis (1), Drug-Induced (ACE inhibitor) (1), Goiter (1), Rhinits (1), Concha bulhosa (1). **Conclusions:** At our Center, the association of the three mentioned tests with the posttreatment diagnostic criteria had an accuracy to identify the causes of chronic cough in 77,8% of the patients. The understanding of causality correlating these three diseases is still speculative.

480 PREVALENCE AND RISK FACTORS FOR CHRONIC BRONCHITIS EN PELOTAS, RS, BRAZIL: A POPULATION-BASED STUDY

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A population-based cross sectional survey was conducted to determine the prevalence of chronic bronchitis and associated risk factors in the urban area of Pelotas in Southern Brazil. A total of 1053 subjects aged 40 years and over were interviewed accounting for 90.3% of eligible subjects. According to the ATS-DLD-78 questionnaire, 12.7% of the sample subjects were classified as having chronic bronchitis.

In the crude analyses, the odds ratios (OR) for the risk factors studied were: male gender (OR = 2.17), no schooling (OR = 4.65), smoking habit (OR = 6.92 for smokers of 20 or more cigarettes per day), high exposure to passive smoking (OR = 1.33), high occupational exposure to dust (OR = 2.48) inadequate housing (OR = 2.09), high level of indoor air pollution (OR = 1.86) and childhood respiratory ilnesses (OR = 2.08).

Multiple logistic regression resulted in the selection of the following risk factors: schooling (OR = 5.60 for subjects with no schooling compared to those with nine or more years), smoking (OR = 8.10 for smokers of 20 or more cigarettes per day compared to non-smokers) and history of major respiratory illnesses in childhood (OR = 2.16).

481 T-CELL RECEPTOR OF PATIENTS WITH OCCUPATIONAL ASTHMA

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Allergen-specific cell lines were established from four patients suffering from asthmatic symptoms due to occupational exposure to the insect-derived allergen *Chi t* 1. All of them have worked in a fish food factory for more than ten years and have been highly exposed to the allergen-containing dust. The patients had specific IgE-levels < 17.5 kU/l and total IgE-levels between 80 and 175 U/ml. Since some diseases, especially with known HLA-restriction, are characterized by elevated T-cell receptor specifities we want to examine the relevance of the T-cell receptor in the human type I immune response. An association of the *Chi t* I allergy with DRB*0101 is known. Therefore we investigated the T-cell repertoire of *Chi t* I sensitized patients. A panel of seven monoclonal antibodies to the T-cell receptor α- or β-chain were used. All *Chi t* I-specific cell-lines showed significantly increased

Vβ8 expression on CD4 positive lymphocytes. In addition, after growing the cells of one patient in IL-2 without *Chi t* I, no significant increase of single T-cell receptor specifities were measurable. These data indicate that allergen-sensitized patients are characterized by a specific T-cell receptor repertoire in response to the allergen.

482 SUPERBAT: A NEW BEHAVIOR THERAPY PROGRAM FOR ASTHMATIC CHILDREN AND YOUTHS

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Despite the availability of effective medication over the past twenty years, there has been no reduction of either the case rate or the death rate of asthma in children living in the industrial countries of the West. In fact, in some countries an increase has been observed.

This infortunate development is due partly to insufficient compliance and partly to the insufficient ability of individuals to cope with their ailment.

"SuperBAT" is a new behavior therapy program that improves the patient's ability to deal with his/her illness. It can be helpful for the following problems:

- Insufficient or incorrect knowledge of respiratory disease
- Lack of self-control in relation to the illness
- Fears concerning the illness
- Strong psychological reactions connected with the retreat from society
- Learning and behavioral problems, esp. in the case of academic perfomance and aggressive behavior.

Sa far, 382 children have undergone the SuperBAT training program.

Results show that chese children

- are better prepared to deal properly with crises
- have a better comprehension of therapeutic measures
- show more active cooperation and a better sense of self responsibility concerning the use of medication.

483 COMPARATIVE INVESTIGATIONS ON THE VALUE OF CONVENTIONAL X-RAY TECHNOLOGY AND HIGH-RESOLUTION COMPUTED TOMOGRAPHY IN THE DIAGNOSIS OF EMPHYSEMA WITH PNEUMOCONIOSIS

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Aim of the Study
Occupationally-caused pneumoconiosis is often accompanied by a lung emphysema. The objectifying and morphological description of emphysematic parenchyma rarefaction is only possible in a restricted way using function-analytical and conventional X-ray procedures. The aim of this investigation was thus to examine the meaningfulness of high-resolution computed tomography (HRCT) in the diagnosis of emphysema with pneumoconiosis.