2771 Detection of cytomegalovirus DNA in lung tissue sections by using in situ polymerase chain reaction
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In situ polymerase chain reaction (ISPCR) is a new technique which combines the extremely high sensitivity of polymerase chain reaction (PCR) and the visualization of amplification products by histological changes. The present study was undertaken to detect cytomegalovirus (CMV) DNA in formalin-fixed, paraffin-embedded lung tissue. Lung tissue specimens from 6 infants who died of histologically diagnosed cytomegalovirus inclusion disease were collected for the study. The primers allowed amplification of a 152-base CMV DNA sequence of strain A169 EcoRI D fragment. The fixed and embedded lung tissues were cut into 4-5 µm sections and were mounted on pre-treated slides, dehydrated, and digested with proteinase K. The amplification was performed on the slides in PCR reaction mixture which contained 40 uM of each primer, 10 uM of each dNTP, 0.01 uM of Taq-DNA polymerase. After 10 thermocycles, the products amplified were visualized by streptavidin-biotin-alkaline phosphatase complex. The specificity of ISPCR was established by the control specimens, which consisted of amplification without primer, without Taq-DNA polymerase and without biotin-1-uM of dUTP. CMV DNA positive deposits were found in several kinds of cells such as endothelial cells of blood vessels, epithelial cells of bronchi, leukocytes in the lumen of small blood vessel, the alveolar cell with or without inclusion bodies. A phenomenon of red blood cells ingested by macrophages was also noted, which demonstrated virus associated hemophagocytic syndrome (VASH). Our results suggest that ISPCR technique might be of practical use in diagnosis and research of CMV infection.

Clinical epidemiology

2772 The diagnosis of asthma: Main determinants for clinical decision
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811 subjects attending the European Respiratory Health Survey, stage 2, in three Italian centers were classified by a panel of three experienced clinicians in each center as current asthmatics or not. Using the “expert classification” as outcome, discriminant analysis and neural networks were utilized for pattern recognition of clinical decision, that is to determine which factors were more important for the physician in classifying a subject as asthmatic or not. In the first model considered, the variables were classified by the procedure in the following order of importance: age, level of symptom prevalence, level of medical consumption and family history. For the second model we used only the variables linked to QOL in the model group patients. For lung function impairment, the relationship of eosinophil count, histamine responsiveness, skin test reactivity and respiratory symptoms to level of FEV1 was studied in a population sample of 665 subjects aged 13-23 years.

Results: In the model group, QOL was weakly related to disease severity. Determinants of quality of life in an asthma survey E. Van Gaebele, W. Vincenzen, I.S. Botwin, P. Bar Nacht, E. Erzh, 1 Respiratory Division AZ VUB, Brussels, Belgium, 2Epidemiology Unit, McGill University, Montreal, Canada, 3Pneumology CHU Liège, Belgium

Quality of life (QOL) is a valid and useful outcome in asthma, providing information distinct from other clinical outcomes. In a survey of asthma patients, we investigated the relationship between QOL and disease characteristics and therapy. Two groups of patients were identified: a «model» group of 51 patients supervised by asthma specialists and a «controls» group of 54 patients usually supervised by family physicians. Patients and caregivers were questioned as to characteristics associated with asthma and therapy, and QOL. A predictive model for QOL was computed incorporating the variables linked to QOL in the model group patients. Results: In the model group, QOL was weakly related to disease severity. Determinants included gender, smoking status, type of therapy, disease duration, depression, level of medical follow-up and socio-economic status. A model including these variables accurately predicted QOL (adjusted R² = 0.86). This model was less satisfactory for predicting QOL in the test group (adjusted R² = 0.36). Conclusions: Disease severity does not seem to be a strong determinant of QOL in asthma. The model computed in a group of well-supervised patients had only limited value in predicting QOL in a group of non-supervised patients. QOL may provide useful information on actual patient’s status, especially among patients treated by physicians in the community, or in the absence of health care databases.

2773 Insulin and glucagon levels are associated with impaired ventilatory function in non-diabetic men
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Greater cardiovascular mortality risk among subjects with lower levels of ventilatory function has been consistently reported from prospective studies, but the underlying mechanisms are not known. Increased risk of coronary heart disease is associated with higher serum insulin levels and is seen in insulin resistant states including glucose intolerance and diabetes. This study examines the relationship between ventilatory function and insulin values, which may contribute to the association between ventilatory function and cardiovascular disease. Cross-sectional data from 1077 non-diabetic participants in the Normative Aging Study were analyzed using multiple linear regression models to control for potential confounders. Forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) were used as measures of ventilatory function and were examined in relation to fasting and post-carbohydrate challenge (PC) insulin and glucagon. Insulin and glucagon measures were negatively correlated with FVC and FEV1 (all P < 0.01). Significant negative associations between ventilatory function and measures of insulin and glucagon (all P ≤ 0.02) persisted in separate multiple linear regression models adjusting for potential confounders including age, height, body mass index, waist to hip circumference ratio and smoking. In conclusion, negative cross-sectional associations between ventilatory function and measures of insulin and glucagon were found in non-diabetic men. Insulin resistance and glucose intolerance may be mechanisms contributing to the previously unexplained association between ventilatory function impairment and cardiovascular mortality. Mechanisms underlying the relationship between insulin, glucagon and decreased ventilatory function are yet to be elucidated.

2774 Active detection of obstructive lung disease in the open population: Results and economic consequences of the DIMCA programme
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Objectives: To actively detect subjects with signs and symptoms of obstructive lung disease (OLD) by means of screening and monitoring the open adult population.

Design: A randomized controlled prospective study (n = 1155 experiment, n = 533 controls).

Subjects: A random sample of the open adult population, who were not corticosteroid-dependant and who were able to participate in an intensive monitoring study during a maximum of 5 years.

Criteria for detection: Three sets of criteria used for detection were applied: (a) Persistently low lung function (FEV1) or increased bronchial hyperresponsive­­ness (PC20 and reversibility) (b) Rapid decline in lung function with signs of bronchial hyperresponsiveness (c) Moderately increased decline in lung function or signs of bronchial hyperresponsive­­ness.

Results: A persistently low lung function (I) was found in 7.7% of the open adult population. The prevalences for criteria II and III were 12.5% and 19.4% respectively.

Notification per 100 detected cases was undiagnosed prior to screening; the majority never ever visited the GP for respiratory symptoms. The total programme costs were Dfl. 245,800, equivalent to Dfl. 975 per detected case. Apart from the programme costs, active detection did not cause an increase in health care consumption.

Conclusion: A large part of OLD morbidity is yet undetected. Active detection is able to select untreated morbidity at reasonably low costs. First indications are that detected cases benefit from treatment (clinically and statistically significant).

2775 Relationship of blood-eosinophils to level of FEV1 in a population sample of adolescents and young adults
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Background and Aim: In order to identify potential risk factors, other than smoking, for lung function impairment, the relationship of eosinophil count, histamine responsiveness, skin test reactivity and respiratory symptoms to level of FEV1 was studied in a population sample of 665 subjects aged 13–23 years.

Methods: Case history was obtained by interview and questionnaire. Pulmonary function, blood-eosinophils, bronchial responsiveness to inhaled histamine and skin test reactivity to common allergens were measured using standard techniques.