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BRONCHOALVEOLAR LAVAGE FOR DIAGNOSIS AND PROGNOSIS OF CHRONIC LUNG DAMAGE IN VENTILATED NEONATES

P.I.Perenovska, V.M.Metodieva, D.N.Diankova, E.G.Christova N.G.Gekova
University Paediatric Hospital, 1606, Sofia, Bulgaria

The study aims to determine the cytomorphologic features of bronchoalveolar lavage /BAL/, significant for diagnosis and prognosis of chronic lung damage in ventilated infants

BAL was studied in 50 /38 preterm,12 full-term/neonates. The cytomorphologic research included percentage of normal and metaplasic bronchoepithelial cells and the percentage of alveolar macrophages, neutrophyls /Ne/, lymphocytes, eosinophyls. The statistical analysis was done by the Student's t-test.

The results showed 80 - 95% metaplastic cells in infants with bronchopulmonary dysplasia, X-ray and clinicaly diagnosed. The patients with chronic obstructive syndrome during the first 3 months had 40-80 % metaplastic cells. The neonates with metaplastic cells less than 40 % showed full recovery. The newborns after aspiration syndrome and/ or pneumonia revealed, more Ne - 45-55 % and big activated macrophages, coresponding to the severity of diasease.

The cytomorphology of cells in BAL can be used as a diagnostic and prognostic criteium of chronic lung disease in ventilated neonates.

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THE USE OF CURANTIL (VASODILLATATOR) FOR TREATING CHILDREN WITH THE DISEASES OF RESPIRATORY TRACT.

Mikhail G.Romantsov, Andrej B.Malashkin, Oleg V.Moroz.
Chemotherapy Department, Influenzae Institute, St.Petersburg, Russia.

At present the list of anti-viral drugs can be supplemented by vasodillatator - curantil - interferone inductor and immune modulator. Clinical effectiveness of curantil was studied in the course of rehabilitation treatment of 24 children with recurrent respiratory diseases. Positive clinical effect of curantil was 79.1 per cent against 20.9 per cent of cases not treated medically. The rise of serum IgA, IgM and IgG (from 0.2 up to 2.5 g/l) was noted along with the tendency towards normalization of C_3 - complement component against the background of normalization of immune regulatory index (CD4/CD8). Thus, we demonstrated the effectiveness of curantil treatment in children with respiratory diseases

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INHIBITION OF NEUTROPHIL ELASTASE IN CYSTIC FIBROSIS SPUTUM BY NATIVE AND OXIDATION-RESISTANT SECRETORY LEUKOPROTEASE INHIBITOR.

Antje Schuster, Gesine Hansen, Christiane Zubrod, Volker Wahn; Department of Paediatrics, University of Düsseldorf, Germany.

High neutrophil elastase (NE) activity in the sputum from cystic fibrosis (CF) patients is regarded as an important factor in CF lung pathophysiology. Therefore, a new therapeutic approach is aerosol delivery of antielastases such as secretory leukoprotease inhibitor (SLPI) to CF airways. We investigated the in vitro interactions of CF sputum samples (n=32) with recombinant native SLPI (rSLPI) and its partially oxidation-resistant variant (rSLPI-242; Grünenthal, Germany) in order to estimate their therapeutic potentials. We found that both rSLPI and rSLPI-242 dose-dependently inhibited NE activity in neutrophil-free supernatants from diluted CF sputum; addition of an oxidant resulted in superiority of rSLPI-242 over rSLPI. When fresh, neutrophil-rich CF sputum samples were incubated with rSLPI or rSLPI-242, inhibition of sputum NE activity by rSLPI-242 was significantly higher than inhibition by rSLPI; addition of an antioxidant improved the effect of rSLPI. Secretion induced from porcine tracheal submucosal glands by purified NE or by CF sputum supernatants was inhibited by rSLPI and rSLPI-242, resp., with superiority of rSLPI-242; addition of an antioxidant abrogated this difference. We conclude that either rSLPI or rSLPI-242 may efficiently inhibit NE activity and its effects in CF airways; the oxidation-resistant rSLPI-242 appears to be advantageous.

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RESPIRATORY SYMPTOMS IN SCHOOLCHILDREN IN THE NETHERLANDS

Jannetje Spee-van der Wekke, Joanna F. Meulmeester, Yvonne Schalk-van der Weide
TNO Prevention and Health, Leiden, The Netherlands

Respiratory problems are the most common health problem in children of school age. As part of the child health monitoring programme the prevalence of respiratory problems during the past year and its effect on school attendance and medicine use were assessed in 5286 schoolchildren aged 4-15 years by questionnaire. The questionnaire was compiled out of the W.H.O. questionnaire on respiratory symptoms and a validated Dutch questionnaire.

Two or more respiratory symptoms were found in 6% of the boys and 4% of the girls. Children aged 4-6 years more often had two or more symptoms than children aged 10 years and older. No regional differences were detected. Of the children with two or more respiratory symptoms 42% didnot attend school for at least one period of five days during the past year and 59% used medication in the month prior to the study. So health education on early symptoms of respiratory problems might be important for children, parents and teachers in order to prevent unnecessary health problems and school non-attendance.

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COMPARISON BETWEEN PROVOCATIVE TESTS IN CHILDHOOD.

Z.TABKA, A.HAYOUNI, A.GARROUCHE, K.MAALAL, A.ZEBIDI, M. JERRAY.
Laboratoire de Physiologie, Faculté de Médecine de Sousse TUNISIE.

The aim was to study 4 different tests used to assess bronchial reactivity in children.80 child of both sexes(6-14 yr)were divided using a standardized anamnestic questionnaire in the following group : A-23 with asthmatic bronchitis;B-14 with allergic asthma;C-16 with recurrent bronchitis;D-10 with allergic rhinitis;E-17 controls. All subjects were in stable phase of the disease under no therapy.In different days,separated by an interval of 7 days,subjects were submitted to the following tests:carbachol(CA),exercice induced asthma (EIA), nebulized distillated water (NDW)and B2 mimetic(B2).Evaluation of the sensitivity reponse to each test is described in the following table:

	CA	EIA	NDW	B
A	93.4 %	62.5%	23.7%	41.9%
B	73.6%	24.6%	19.4%	63.4%
C	56.4%	6.9%	15.4%	1.7%
D	28.4%	3.1%	18.4%	13.1%

All the tests were negative in control group.Using of more than one test did not increase the sensitivity of the diagnostic.The subdivision of the subjects according to presence(52 patients)or absence(28patients) of bronchospasm history was made;we calculated the positive(CA:87.6%, NDW:72.9%,EIA:83.7%),negative(CA:83.4%,NDW:49.7%,EIH:56.9%)predictive value of tests and their concordance(CA:83.4%,NDW:50.4%,EIA:51.4%).We concluded that carbachol challenge was the most sensitive in all groups among the different tests.In addition,it was capable to definie the true negative subjects in order to abtain a good thrapeutic approch.

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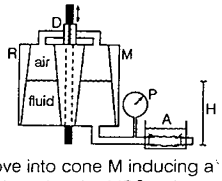
A NEW DEVICE TO MEASURE ISOBARIC AIRWAY CONTRACTION IN VITRO

Harm A.W.M. Tiddens[1], Wim P. Holland[2], and Johan C. de Jongste[1]
[1]Dept. of Pediatrics, div. Respiratory Medicine and [2]Central Instrumentation Department, Erasmus University and University Hospital/Sophia Children's Hospital, Rotterdam.

In order to measure small volumes displaced (1-700 μl) by contracting airways without changing the load (pressure) we developed a new device: the microplethysmograph (MP). **Methods:** The cannulated airway (A) is connected with the measurement cone (M) of a MP. The pressure difference between cone M and the identical reference cone (R) is measured using a differential pressure transducer (D) (LCVR 0-2 cm H_2O, Celesco, USA). The fluid volume in both cones can be increased to increase its full scale sensitivity from 700 to only 10 μl. The height (H) of the MPG can be varied to set the pressure (P) in the airway.



Measurement: As the airway contracts, fluid will move into cone M inducing a pressure rise. This pressure rise is compensated by lowering the MPG to keep conditions isobaric. The pressure difference between cone M and R is measured by transducer D. **Conclusion:** We developed a highly sensitive and stable microplethysmograph for measurement of extremely small volume changes in isobaric conditions. We think that this system is applicable to pediatric research in many fields.