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Session 111: Expiration, exhalation and exhaustion: measures of dynamic volumes, breath analysis and respiratory muscles - Sunday, 08.09.2013 - 12:50-14:40 - HALL 1-38

1275: An application of electronic nose technology for diagnosis of Alzheimer[apos]s disease; A. R. Koczulla, M. Gold, A. Hattesohl, D. Lubbe, D. Mengel, S. Schmid, B. Tackenberg, J. Rieke, S. Maddula, J. I. Baumbach, J. Michelis, J. Alferink, M. Heneka, W. Oertel, F. Jessen, S. Janciauskiene, C. Vogelmeier, R. Dodel, J. P. Bach (Marburg, Giessen, Dortmund, Bonn, Münster, Hannover, Germany)

... (AD n = 18, 21), (HC n = 19, 16). EB condensate and human lung tissue were analyzed for different Abeta species, tau-protein using ELISA. EB was analyzed for volatile organic compounds (VOC) s by patterns (Cyranose 320, IMS) and by single VOCs (IMS). Results: By Cyranose 320R we could differentiate with the leave-one-out cross-validation between healthy control and AD patients with a sensitivity of 69.8 %and a specificity of 68.7 %. Based on single identified substances with IMS a decision **...**

Session 90: Asthma - Sunday, 08.09.2013 - 12:50-14:40 - HALL 1-15

850: Electronic nose breathprints reflect BALF inflammatory cell counts in asthma; N. Fens, K. F. van der Sluijs, M. A. van de Pol, R. Lutter, P. J. Sterk (Amsterdam, Netherlands)

... capture markers of peripheral airway inflammation as derived from bronchoalveolar lavage fluid (BALF) in mild allergic asthma. METHODS Breathprints, exhaled NO and inflammatory cell counts in BALF were obtained from 13 mild allergic, steroid-naive asthmatics and 11 healthy non-allergic controls. eNose (Cyranose 320) breathprints were analyzed by principal component (PC) analysis. The relationship between breathprints, NO and BALF inflammatory cell counts was analyzed using multivariate regression analysis (Sidak correction for multiple testing). RESULTS Breathprints were significantly related to BALF neutrophils and eosinophils in all subjects. **...**

Session 205: Epidemiology, screening and diagnosis of lung cancer - Monday, 09.09.2013 - 08:30-10:30 - Room 2.3

1824: Analysis of exhaled breath with electronic nose and diagnosis of lung cancer by support vector machine; M. Bukovskis, G. Strazda, N. Jurka, U. Kopeika, A. Pirtnieks, L. Balode, J. Aprinceva, I. Kantane, I. Taivans (Riga, Latvia)

... group of patients with COPD, asthma, pneumonia, bronchiectasis and healthy volunteers (no cancer group) was examined. Subjects inspired VOC-filtered air by tidal breathing for 5 minutes, and a single expiratory vital capacity was collected that was sampled by electronic nose (Cyranose 320) within 5 minutes. Smellprints were analyzed by support vector machine. Age, smoking history (pack years) and ambient temperature C were included as continuous predictors of the diagnosis. Patients were devided into 75 %training and 25 %test group. Cross-validation, class accuracy **...**

Session 272: New methods for diagnostic workup of lung cancer - Monday, 09.09.2013 - 12:50-14:40 - HALL 1-40

2888: Detection of early stage lung cancer by electronic nose; M. Bukovskis, G. Strazda, N. Jurka, U. Kopeika, A. Pirtnieks, L. Balode, J. Aprinceva, I. Kantane, I. Taivans (Riga, Latvia)

... patients, mixed group of patients with COPD, asthma, bronchiectasis and healthy volunteers (no cancer group) was examined. Subjects inspired filtered air by tidal breathing for 5 minutes, and a single expiratory vital capacity was collected and sampled by electronic nose (Cyranose 320). Maximum (Rmax), AUC (0-60 ") and tgalpha0-60" of the curves were analyzed by support vector machine. Age, smoking history (pack years) and ambient temperature C were included as continuous predictors of the diagnosis. Results 40 patients with stage 1 or **...**

Session 272: New methods for diagnostic workup of lung cancer - Monday, 09.09.2013 - 12:50-14:40 - HALL 1-40

2889: Analysis of exhaled breath with electronic nose and diagnosis of lung cancer by multifactorial logistic regression analysis; M. Bukovskis, G. Strazda, N. Jurka, U. Kopeika, A. Pirtnieks, L. Balode, J. Aprinceva, I. Kantane, I. Taivans (Riga, Latvia)

... breath of morphologically verified lung cancer patients (cancer group) and mixed group of patients with COPD, asthma, pneumonia, bronchiectasis and healthy volunteers (no cancer group) was examined. Exhaled air was collected using standardized method and sampled by electronic nose (Cyranose 320). Optimal detector parameter combination and methematical model for discrimination of lung cancer was calculated by MLRA backward stepwise method. Sensitivity, specificity, positive (PPV) and negative predictive value (NPV) of the method in the training group of smokers and nonsmokers was calculated. **...**

Session 272: New methods for diagnostic workup of lung cancer - Monday, 09.09.2013 - 12:50-14:40 - HALL 1-40

2891: Analysis of exhaled breath with electronic nose and discrimination of lung cancer and COPD by logistic regression analysis; G. Strazda, M. Bukovskis, U. Kopeika, A. Pirtnieks, N. Jurka, L. Balode, J. Aprinceva, A. Kislina, V. Silins, I. Taivans (Riga, Latvia)

... group), COPD patients without verified lung cancer (COPD group) and healthy volunteers (control group) was examined. Subjects inspired VOC-filtered air by tidal breathing for 5 minutes, and a single expiratory vital capacity was collected that was sampled by electronic nose (Cyranose 320). Optimal detector parameter combination and mathematical model for discrimination of lung cancer were calculated by MLRA backward stepwise method. Age, smoking history (pack years) and ambient temperature C were included as continuous predictors of the diagnosis. Percentage of correct prediction cases was calculated. **...**

Session 303: Asthma and COPD: diseases with different phenotypes - Monday, 09.09.2013 - 14:45-16:45 - Room 2.3

3041: Unbiased cluster analysis of severe asthma based on metabolomics by the U-BIOPRED electronic nose platform; P. Brinkman, A. Wagener, H. Knobel, A. Vink, N. Rattray, S. Fowler, M. Santonico, G. Pennazza, P. Montuschi, P. Sterk, U-BIOPRED Study Group (Amsterdam, Eindhoven, Netherlands; Manchester, United Kingdom; Rome, Italy)

... eNose). Methods. This was a cross-sectional analysis of the U-BIOPRED cohort. Severe asthma was defined by IMI-criteria [Bel Thorax 2011]. Exhaled volatile organic compounds (VOCs) trapped on adsorption tubes were analysed by centralized eNose platform (Owlstone Lonestar, Cyranose 320, Comon Invent, Tor Vergata TEN) with 190 sensors in total. Ward clustering followed by one-way ANOVA was done in R. Results. Data were available for 57 patients (age 55 13yr, 39 %male, 47 %(ex) smokers, >1000 **...**

Session 364: Assessment of airway inflammation by exhaled gases - Tuesday, 10.09.2013 - 10:45-12:45 - Room 3.3

3551: An electronic nose can distinguish between different asthma phenotypes; T. Greulich, P. J. Sterk, D. Hamm, J. Koepke, A. Hattesohl, C. Nell, C. F. Vogelmeier, C. Seifart, A. R. Koczulla (Marburg, Germany; Amsterdam, Netherlands)

... included 40 adult, steroid-naive participants (9 eosinophilic asthma, 11 non-eosinophilic asthma, 10 allergic rhinitis, 10 healthy controls) in this study. Sputum induction, spirometry, measurement of fraction of exhaled nitric oxide (FeNO), and exhaled breath analysis via the Cyranose 320 was done. For statistical analysis the linear discriminant analysis was performed. Results: We identified a Linear Discriminant function separating the eNose derived volatile organic compound pattern from eosinophilic vs. non-eosinophilic asthma (p <0.0001). The corresponding area under the Receiver Operating Curve (AUC **...**

Session 482: Origins and diagnosis of asthma - Wednesday, 11.09.2013 - 10:45-12:45 - Room 2.3

5021: Discrimination of bronchial inflammatory phenotype of asthmatic patients by using the electronic nose; A. Crespo, J. Giner, O. Sibila, J. L. Merino, P. Peñacoba, E. Mateus, M. Torrejón, A. Belda, T. Garriga, V. Plaza (Barcelona, Balearic Islands, Spain)

... underwent the same day of the visit an: induced sputum, pulmonary function studies and fractional exhaled nitric oxide. Asthmatic patients were classified as induced sputum cellularity (inflammatory profile). The determination of VOCs in the exhaled air is conducted through an electronic nose Cyranose 320 (Smith Detections, Pasadena, CA) according to the method described by Dragonieri S, et al. The breathprints produced by the electronic nose is mathematically analyzed by logarithmic regression, represented unilaterally and bidimensional for further analysis and interpretation. Results: Descriptive analysis intergroup and between **...**