FINAL PROGRAMME
P3942
Estimated lung age in healthy Mediterranean adults cannot be predicted using reference equations derived from other populations.
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Background: Interpretation of “lung age, LA” data relies upon comparison with the obstructive lung age (CLA) with the estimated one (ELA) predicted from published reference equations (Morris and Temple 1985, Newbury 2010, Hansez 2010, Yamaguchi 2012). Aims: To test the applicability of the published ELA reference equations in healthy non-smoker Mediterranean aged 19-96 yrs. Methods: Published reference equations were applied to the spirometry results of 340 subjects (364 women, mean±SD of age and height: 48.8±13.1 yrs and 1.64±10 m). Spirometry measurements were done according international guidelines. Isthmus and Airway comparisons, for the same age range as in the corresponding study, between CLA and ELA were done. Results: Mean±SD ELA was significantly underestimated by 17±19 yrs (Hansez), by 13±23 yrs (Morris and Temple model using FEV1) and by 11±27 yrs (Yamaguchi) and was significantly overestimated by 7±8±19 yrs (Newbury). Conclusion: Published and locally applied spirometric ELA reference equations didn’t reliably predict CLA data in Mediterranean population. Our results strongly suggest that existing ELA equations are need of review.


P3943
The role of lung function measurement in the diagnosing of pulmonary microangiopathy in diabetic patients
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Introduction
Diabetes (DM) complications in respiratory system involve pulmonary parenchyma, bones and cartilages of chest and respiratory muscles. In the course of DM dysfunction of lung functions and diffusion through alveolocapillary barrier are observed.

Aim of the study
To determine usefulness of pulmonary function tests (PFT): spirometry, blood gas analysis and diffusion capacity (DLCO) in evaluation of pulmonary microangiopathy in patients with DM.

Material and methods
184 patients aged 17-76 were enrolled. 78 (42.5%) women and 106 (57.5%) men. All persons were non-smokers, free from any acute or chronic respiratory disease that could influence pulmonary function. They were divided into two subgroups: DM group and control group (CG).

Results
Values of VC, FEV1, PEF, TLC, TGV were significantly higher in CG compared to DM (p<0.001). Analyses of subgroups of DM revealed higher values of FEV1 in DM1 compared to DM2. Mean value of total DLCO was lower in DM with no differences in the diabetes subgroups. DLCO/VA in DM group was similar to mean results in CG and slightly higher compared to DM2 group (1.56 vs 1.58 mmol/min/kPa, p<0.05). This relation was particularly observed in patients with confirmed microangiopathy (renal, nephropathy). In CG mean levels of CRP and fibrinogen were significantly lower compared to DM – 1.6 vs 3.22 mg/dL, p<0.001 and 3.0 vs 4.0 mg/dL, p<0.001, respectively.

Conclusions
Significant reduction of PFTs in DM may confirm dysfunction of alveolocapillary barrier and indicate pulmonary microangiopathy. Additional factor leading to exacerbation of this dysfunction is high level of CRP and fibrinogen in DM.

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P3944
Reversibility of diffusion capacity abnormalities in patients with clinical hypothyroidism with establishment of euthyroid state
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Background: Hypothyroidism is associated with significant reduction of parameters of diffusion capacity and slight peripheral obstruction. However, it is not quite clear whether these abnormalities are reversible.

Aim: To evaluate the reversibility of diffusion capacity (Dco) abnormalities in patients with clinical hypothyroidism with establishment of euthyroid state.

Patients and methods: Sixteen patients with different forms of autoimmune thyroiditis in clinical hypothyroid state (male-female = 4:12; age = 43.0±13.4 (mean±SD), TSH=10.6±5.3 mIU/L, FT4=4.6±3.8 pmol/L) and 14 age and sex matched controls were included in the study. Pulmonary function assessment included slow vital capacity, forced spirometry and diffusion measurements (MasterScreen Diffusion, E. Jaeger, Germany).

Results: Most of the patients with hypothyroidism (13/16) revealed significantly reduced diffusion capacity for carbon monoxide (Dco, %pred. = 75.5±9.7 vs 93.8±2.9 in controls, p<0.001) that correlated with the levels of TSH (r = -0.587; p<0.05) and FT4 (r = -0.315; p>0.05). Following approximately six months of treatment and reaching a euthyroid state (TSH = 3.6±1.2 mIU/L) diffusion capacity was significantly improved (Dco, %pred. = 80.3±10.3 vs. 70.5±6.7 before treatment, p<0.03). No changes were apparent in the other pulmonary function parameters.

Conclusion: Hypothyroidism is associated with significant reduction of diffusion capacity. Restoring euthyroid state reverses these abnormalities as seen by the substantial improvement of Dco.