

LUNG FUNCTION TESTS IN ADOLESCENTS WITH DIABETIC AUTONOMIC NEUROPATHY

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Introduction: Chronic diabetic complications may afflict all organ tissues including respiratory system. The aim of the study was to establish if the presence of autonomic neuropathy influenced lung function tests in adolescents with type 1 diabetes (T1D). **Methods:** 46 adolescents with T1D and 25 healthy subjects at the age 15-19 years were enrolled to the study. Basic anthropometric data, diabetes onset and duration, plasma glucose and glycosylated hemoglobin were established. Lung functions were examined by spirometry (KokoDigiDoserSpirometry, nSpireHealth, Louisiana, USA). The presence of autonomic neuropathy was investigated by heart rate variability (VariaPulseTF4, DimeaGroup, Olomouc, Czech Republic). **Results:** Adolescents with T1D had significantly lower parameters of lung functions - FVC ($p=0.01$), FEV1 ($p<0.01$), MMEF ($p<0.05$) and PEFR ($p<0.05$) compared to the control subjects. In diabetic group, patients with autonomic neuropathy (DAN+, $n=19$) had significantly lower FVC ($p=0.05$), FEV1 ($p<0.05$) and PEFR ($p=0.05$) compared to patients without neuropathy (DAN-, $n=27$). Spirometry parameters were positively correlated with diabetes onset and negatively correlated with diabetes duration. All measured spirometry parameters were significantly lower in DAN+ subjects compared to healthy subjects however no significant difference was found in these parameters between DAN- subjects and healthy controls. **Conclusions:** According to our results, diabetic adolescents with autonomic neuropathy had significantly lower parameters of lung function tests compared to patients without neuropathy. Investigation of lung functions may serve for early detection of chronic diabetic complications.

This work was supported by project "Centre of Experimental and Clinical Respirology II" co-financed from EU sources and European Regional Development Fund.