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Title: Obstructive sleep apnea syndrome and cardiovascular diseases risk in patients with COPD

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Body: Purpose: to define the correlation between obstructive sleep apnea syndrome (OSAS) and increasing of cardiovascular risk in patients with chronic obstructive pulmonary diseases (COPD). Design: There were examined 33 patients in the age of $63,93 \pm 1,59$ years with COPD stage 2 (85%) and stage 3 (15%). Duration of disease was: 10-14 years – 22 patients (67%) and 15-24 years – 11 patients (33%). 60% of patients were smoking, index of smoking - $14,7 \pm 0,48$ pack-years. Control group included 10 practically healthy persons. Methods: Holter monitor test with rheopneumography, spirometry, X-ray examination, six-minute walk test, calculation of cardiovascular risk according to the scale SCORE (Systematic Coronary Risk Evaluation). Patients received basic therapy according to the recommendations of GOLD, 2009. Results: 62% of patients had OSAS of mild stage and 38% - had OSAS of moderate stage ($p < 0,05$). Duration of apnea cases varied from 259,0-1240,0 sec. 82% of patients had from 90 to 13990 cases of cardiac rhythm disturbances within 24 hours. Extremity index of heart rate (EIHR) varied during sleep - $2,1456 \pm 0,19$. There were revealed correlations between duration of apnea cases and cardiovascular diseases risk ($r = 0,7136$; $p < 0,05$), number of heart rhythm disorders ($r = 0,7373$; $p < 0,05$), general cholesterol ($r = 0,7269$; $p < 0,05$). There was correlation between EIHR during sleep and OSAS ($r = 0,77$; $p < 0,05$). Patients had evidently increased risk for fatal complications according to the scale SCORE ($r = 0,8139$; $p < 0,05$): high risk level in 12,5% and very high - in 75% of cases. Conclusions: Patients with both COPD and OSAS have evidently increased risk for fatal complications.