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Title: Tumor necrosis factor-α (TNF- α) gene polymorphysm in work-related chronic bronchitis prognosis

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Body: Objective: Cytokine gene polymorphism could contribute to different susceptibility of occupational dust exposure and work-related chronic bronchitis development and management. Methods: 87 work-related bronchitis patients were enrolled to the study. Spirometry, pulse oximetry data, autonomic regulation, questionnaire SAN data were assessed on exacerbation and after treatment. Patients were genotyped on TNF- α gene G(-308)A and G(-238)A transitions. Results: TNF-α gene polymorphism revealed that heterozygous type was most frequent. Homozygous GG - G(-308)A and G(-238)A were determined in 5,7% and 12,6% of patients respectively. GG 308 carriers had lower body mass than those in heterozygotes -70 kg vs 85 kg, p<0,04). Homozygotes revealed better pulmonary tests results after the treatment- FEV1/FVC increase (1,00 vs -0,69, respectively, p<0,04),respiratory volume (0,18 vs 0,02 l,p=0,05), minute volume of respiration (6,20 vs 0,55 l, p<0,01).GG 238 homozygotes demonstrated lower vital capacity vs those in the heterozygous (63 vs 71,5 % of the predicted,respectively,p<0,02).GG 238 had higher oxygen saturation at rest (p<0,02), at the breath holding (p<0,01) and at the hyperventilation (p<0,005).Homozygotes had lower points increase in CAT test than those in heterozygotes after the treatment (-5 vs -1, p<0,04), better SAN test results (1,20 vs 0,35 points, p<0,04). Conclusions: TNF- α gene polymorphism is reliable for the prognosis of the work-related chronic bronchitis. GG 308 and GG 238 carriers with work-related chronic bronchitis revealed better pulmonary tests results and better improvement after the treatment vs the heterozygotes with the comparable length of service.