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Title: Relationship between cellular immunity and functional lung tests in COPD patients – Clean-up workers of the Chernobyl catastrophe in the remote period after the accident

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Body: Aim: The aim of this study was determine the relationship between changes of cellular immunity and respiratory disorders in COPD patients – clean-up workers(CUW) of ChNPP accident in the remote period after irradiation. Methods: The results of 122 male individual's examination were analyzed. First study group – 48 CUW of 1986 with doses above 500 mSv. Second – 36 CUW less than 500 mSv. Comparison group - 38 not exposed patients. Age of all three groups COPD patients was comparable. Functional lung tests included spirometry, body pletismography and lung diffusion. Immunity was studied by flow cytometry. Results: Bronchial obstruction, disorders ratio lung volumes, violation of pulmonary diffusion was significantly harder in the first group compared with control group. The decrease of natural killer cells and cytotoxic T-lph. was shown. There is a tendency to decline in respiratory function in the absence of abnormalities of T-cells, whereas higher rates CD4+, CD3+ cells and the ratio of CD4+ / 8+ accompanied by the best indicators of lung function. Conclusion: Study demonstrates the presence of more expressive pulmonary obstruction, hyperinflation and emphysema in the first group. The link between the state of cellular immunity and lung function was shown. The dose-dependent changes in cellular immunity, in particular the content of cytotoxic T-lph., were correlated with the expressiveness of obstructive respiratory disorders in doses up to 500 mSv. At doses above 500 mSv in COPD patients with significant respiratory disorders in the remote period after the exposure occurs distinct depressed immune system.