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**Title:** Inhalations of the heated helium-oxygen mixture (heliox) as addition to standard therapy of community-acquired pneumonia

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**Body:** Background: Community-acquired pneumonia (CAP) is one of the leading causes of mortality from infectious diseases in the Russia. Thus, searching of new methods of multimodal therapy of CAP is actual problem. Objective: To evaluate the effectiveness of inhalations of heated heliox as additional option to standard treatment of CAP. Methods: A randomized single center controlled study of adult patients with moderate CAP. 60 Patients (30 in study group and 30 in control group) were treated with standard protocols for the moderate CAP. Patients from study group received in addition 7 days of 40°C heliox inhalations in cyclic-fractionated mode. Results: In the study group we saw more frequent resolution of x-ray changes to day 14 (complete radiological resolution was seen in 73% and 56% of patients of the study and control groups respectively) along with the disappearance of main pneumonia symptoms (cough, sputum production, general weakness, bronchial breath sounds, crackles, dullness to percussion). Thus, physical signs of pneumonia disappeared on the day  $6,9 \pm 1,9$  (range 4-12) in the study group and on day  $9,16 \pm 1,93$  (range 5-12) in the control group ( $p < 0,001$  by Student's t-test). The symptoms duration correlated with the intensity of whole blood chemiluminescence (which is caused by the activation of neutrophils during inflammation) on day 4 (Spearman correlation coefficient  $r = 0,87$ ,  $p < 0,05$ ) and day 8, but not with the concentration of C-reactive protein and fibrinogen in the same days. Conclusion: inhalations of heated heliox makes therapy of CAP more effective by the accelerated resolution of inflammatory infiltrate in the lungs.