Report concerns the observations made during the treatment of antibiotic resistant pneumonia in patients on mechanical ventilation. The treatment of patients was supplemented with phage therapy; bacteriophages were selected individually for each patient, taking into account the microbial etiology of the disease (Pseudomonas aeruginosa, Кlebsiella pneumoniae, Acinetobacter baumanii). Phage therapy course duration was 5 days. In some cases, it took more than one course of phage therapy and/or the use of bacteriophages cocktail. The patient’s immune system state was assessed before the start of phage therapy and weekly after it began (a total of 2-5 times). The immunological examination included immunophenotyping of blood lymphocytes and determination of IgG, IgA, IgM serum concentrations. The functional activity of blood leukocytes was assessed by their ability to produce IFNα and IFNγ in vitro. Before the start of phage therapy, half of the examined patients showed lymphopenia, a reduced number of cytolytic T-lymphocytes (CTL), and NK cells. A decrease in the number of CTL in most patients was combined with an increase in the percentage of activated cells among them (CD3+CD8+CD38+). A decrease in the number of T-helpers in the blood was detected in 68.4% of patients, but no increase in the number of activated ones was detected among them. B-lymphocyte deficiency was registered in less than half of the patients, and a decrease in IgG concentration was detected in the blood serum of 5 people (26.3%). In whole blood cell cultures there was a decrease in the ability to produce IFNγ was . Immediately after the completion of one course of phage therapy, the number of lymphocytes in such subpopulations as T-helpers and NK-cells significantly increases. Functional activity of lymphocytes was also registered at a higher level. The percentage of CD3+HLA DR+ increased and the ability of blood lymphocytes to produce IFNγ increased too. The relationship between the microbial load (mono- or mixed infection, the number of CFU pathogens of pneumonia, the need for repeated courses of phage therapy) and the degree of deficiency in one or another subpopulation of lymphocytes was not detected. It is possible that the decrease in antigenic load in the respiratory tract, achieved immediately with successful phage therapy, reduces the need for these cellular elements, and an additional number of lymphocytes, including activated ones, appear in the peripheral blood. The question of whether the state of the immune system after 3 weeks or more is associated with the immunomodulating effect of the bacteriophage remains open.