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Fund “Nauka” Project № 25016 Resume – Competition-based Session 2016:

“Serum biomarkers of inflammation in patients with acute exacerbation of chronic obstructive pulmonary disease”

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Chronic obstructive pulmonary disease (COPD) is one of the three most common causes of death worldwide. According to statistics, over 3 million deaths were recorded in 2012, which is about 6% of all deaths worldwide. Exacerbation is an inevitable part of the natural development of COPD and is responsible for an increased number of unplanned hospitalizations in intensive care units, which generates significant costs that burden the health system. Frequent exacerbations accelerate the progression of the disease, as a result of which these patients have a faster deterioration of lung function, a worse quality of life and reduced physical work capacity. Even after the exacerbation subsides, respiratory, physical, social and emotional disorders can persist for a longer period of time. Treatment of COPD is aimed at reducing the frequency and severity of exacerbations, improving quality of life and reducing costs. The pathogenesis of COPD involves a series of cellular and molecular processes driven by cytokines, chemokines, growth factors, oxidative stress, apoptosis, protease-antiprotease imbalance and chronic tissue damage. The multifactorial nature of the pathogenesis suggests that a large number of molecules could serve as biomarkers indicative of different aspects of the disease such as the presence or extent of lung injury, pulmonary or systemic inflammation and comorbidities. C-reactive protein and procalcitonin remain by far the most widely used biomarkers of inflammation, however, the search for innovative ones that can be used in clinical practice continues. The present project aims to investigate the correlation between SAA (serum amyloid A), TGF beta 1 (transforming growth factor beta 1), SP-D (surfactant protein D) and the clinical course of the disease in patients with acute exacerbation of COPD. The development of appropriate biomarkers is essential to enrich current knowledge in the field and discover individualized therapies that would combine improved clinical efficacy for patients in each of the COPD phenotypes.

Expected results:

1. Collection of data on the course and outcome of COPD exacerbation in Bulgaria;

2. Assessment of inflammatory markers – SAA (serum amyloid A), TGF beta 1 (transforming growth factor beta 1), SP-D (surfactant protein D) and role in clinical practice in patients with acute COPD exacerbation;
3. Analysis of the established results in the context of the diagnostic and therapeutic approach, with a view to modifying the risks of adverse fatal and non-fatal incidents.