

Role of GDF-15 in the pathomechanism of acute right ventricle failure in the model of acute pulmonary embolism

Cardiovascular diseases remain the leading cause of death in European countries. Amongst those, the third most frequent is venous thromboembolism, with its most dangerous manifestation acute pulmonary embolism. The primary cause of death in acute pulmonary embolism is right ventricle failure.

The mechanisms responsible for the development and further progression of right ventricle failure have not been fully established yet. However, it is generally expected that both the restriction of blood supply (ischemia) and local inflammation contribute to its development.

The aim of our study is to specify the role of a cytokine, called growth differentiation factor-15 (GDF-15) in the development of acute right ventricle failure. We believe that higher serum concentrations of GDF-15 are associated with more advanced right ventricle dysfunction and failure.

In the next three years we plan to assess the degree of right ventricle dysfunction in patients with acute pulmonary embolism using transthoracic echocardiography and the serum concentration of established biomarkers of cardiac ischemia and overload (troponin T, N-terminal fragment of natriuretic peptide type B). The serum concentration of GDF-15 will also be assessed.

Our study will allow for a better understanding of the pathomechanisms driving RV failure. This knowledge may in the future aid risk stratification in APE which is fundamental for tailoring the best treatment.