27th European Cardiology Conference

October 22-24, 2018 | Rome, Italy

Structural-functional correlations of the early and progression changes of valvular aortic lesion induced by diabetes

Monica Tucureanu¹, Alexandru Filippi¹, Cristina Ana Constantinescu¹, Nicoleta Alexandru¹, Daniela Rebleanu¹, Letitia Ciortan¹, Razvan Macarie¹, Manuela Calin¹, Sabina Frunza², Agneta Simionescu¹, Adriana Georgescu¹ and Ileana Manduteanu¹ ¹Institute of Cellular Biology and Pathology Nicolae Simionescu, Romania ²Emergency Clinical Hospital, Bucharest, Romania

Diabetes contributes directly to the development of cardiovascular disorders including aortic valve disease. There is currently no drug therapy available for a dysfunctional valve and this urges the need for additional research to identify distinctive mechanisms of valve disease evolution. The aim of this time course study is to evaluate structural-functional correlations of the early and progression changes of valvular aortic lesion induced by diabetes. We evaluated plasma parameters, hemodynamic parameters (by echography-based in vivo imaging) and inflammatory, remodelling and calcification indexes in a streptozotocin-induced diabetic apolipoprotein E-deficient mouse model. The blood and aortic valves were collected at 1, 2, 4 weeks from the last streptozotocin injection. Inflammatory, remodeling and calcification indexes were calculated as fold changes in expression of investigated molecules in diabetic animals at different time points relative to controls. A correlation between pro-inflammatory, remodeling and calcific indexes, plasma parameters and functional hemodynamic parameters was displayed in a correlation matrix. The Pearson (r) correlation coefficient was determined using R software. The results showed statistical significant positive correlations between: (1) α SMA expression and remodelling index, (2) α SMA expression and aortic cusp thickness, (3) remodelling index and aortic cusp thickness, (4) inflammatory index and calcification index, (5) inflammatory index and remodelling index. Our study may help to advance the understanding of the mechanisms of aortic valve disease in the diabetic milieu in order to discover and validate new possible targets for nanobiotherapies.

Biography

Monica Tucureanu pursued her PhD in Life Sciences from the School of Advanced Studies of the Romanian Academy, Romania. She is currently a Researcher in the Department of Biopathology and Therapy of Inflammation at the Institute of Cellular Biology and Pathology Nicolae Simionescu a renowned research institute in the field of cardiovascular biopathology. She has published 15 papers in well-known scientific journals.

Notes: