PROTEOMIC ANALYSIS: DECREASED ENERGY METABOLISM ENZYMES IN MYOCARDIUM FROM CHRONIC CHAGAS DISEASE PATIENTS

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Chronic Chagas disease cardiomyopathy (CCC), caused by *Trypanosoma cruzi*, has a shorter survival than idiopathic dilated cardiomyopathy (IDC). Previous proteomic analysis identified reduced expression of creatine kinase isoforms in the myocardium of one CCC patient as compared to one IDC patient. In this study we compared the myocardial protein expression from five CCC patients and five IDC patients, focusing on energy metabolism proteins. Myocardium homogenates were subjected to two-dimensional electrophoresis. The selected spots were tryptically digested and analyzed by Q-ToF mass spectrometry (MS/MS). Samples were also analyzed by western blotting with appropriated antibodies. Differential proteomics identified significantly reduced median expression of distinct isoforms of creatine kinase M (IDC/CCC=2.1-3.2, $p<0.05$) and aconitase (IDC/CCC=1.7, $p<0.05$) in the CCC compared to IDC samples. Expression of ATP synthase, chains alpha and beta, were also reduced in the CCC samples as observed by western blotting (IDC/CCC=1.24; IDC/CCC=1.23, respectively, $p<0.05$). Given the importance of aconitase and ATP synthase in the ATP synthesis and the fundamental role of creatine kinase system in the translocation of high-energy phosphate, our findings suggest a possible energetic deficit in CCC myocardium, that might contribute to the shorter survival observed in CCC as compared to IDC patients. **Supported by**: FAPESP and CNPq.