ATRIAL FIBRILLATION IS NOT ASSOCIATED WITH ALTERED LEFT ATRIAL MICRORNA EXPRESSION PROFILE IN ISCHEMIC END-STAGE HUMAN HEART FAILURE

Tímea Bálint[1], Mihály Ruppert[1], Bence Ágg[2,3], Alex Ali Sayour[1], Attila Oláh[1], Szilvia Kugler[1], Péter Perge[1], László Daróczi[1], Miklós Pólos[1], Kálmán Benke[1], Péter Ferdinándy[2,3], Béla Merkely[1], Tamás Radovits[1]

[1]*Heart and Vascular Centre, Semmelweis University, Budapest, Hungary*
[2]*Department of Pharmacology and Pharmacotherapy, Semmelweis University, Budapest Hungary*
[3]*Pharmahungary Group, Szeged, Hungary*

In chronic heart failure (CHF), atrial remodeling is frequently accompanied by atrial fibrillation (AF). Nevertheless, some patients with CHF remain in sinus rythm (SR) despite of the pathological alterations of the left atria (LA). Recent studies have shown that changes in microRNA (miRNA) expression may contribute to the remodelling of the LA. However, the direct role of miRNA expression dysregulation in the development of AF has not yet been investigated independently of pathologically altered LA.
Hence, we aimed to characterize miRNA expression in LA samples from end-stage heart failure patients with AF or SR.
LA samples were collected from male, non-diabetic patients with end-stage ischemic HF who underwent heart transplantation (n=24). There were no differences in the age, ejection fraction, LA diameter and NYHA class of our groups. As a marker of atrial strain, mRNA expression of atrial natriuretic peptide (ANP) was measured by qRT-PCR. A histological examination was performed to characterize the degree of atrial fibrosis. Global miRNA expression profiling was performed using the Nanostring technology.
The mRNA expression of ANP was similar between the CHF-AF and CHF-SR groups, which suggests that the atrial load was the same in the two groups. Furthermore, no difference in atrial collagen content was observed between the groups, which confirms that the fibrotic alteration was similar. The miRNA measurement showed no difference in atrial miRNA expression between the two study groups.
AF is not associated with different left atrial miRNA expression in end-stage CHF with a similar degree of LA dilatation, ANP expression and interstitial fibrosis.

Keywords: atrial fibrillation, microRNA, heart failure, left atrium