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Circulating miR-21 and TGF-·1 expression levels in patients with cardiovascular diseases

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Abstract

Recent works focus on the role microRNAs (miRNAs) play in regulation of cardiovascular pathology. One of the miRNAs highly expressed in cardiovascular system is miR-21.

The aim of this study was to investigate the relationship between the expression level of miR–21 in cardiac disease and correlate with TGF-·1, one of its targets.

Methods: Plasma samples from patients with CVD (cardiovascular diseases) established according to clinical and paraclinical exams were subjected to total RNAs isolation. miR-21 expression levels in patients with CVD and in healthy control subjects were quantified on ABI 7300 real-time PCR (Applied BioSystems) and normalized to RNU-43. TGF- ·1 was predicted as potential target of miR-21 using MicroCosm TARGETS and quantified in TaqMan system (normalized to GAPDH). Statistical analysis was performed with GraphPad Prism.

Results: Significant lower levels of miR-21 were found in CVD patients vs. controls ($p<0.0001$). An inverse correlation between miR-21 and TGF- ·1 expression levels was noted in CVD patients. miR-21 levels vs. control were significantly different for ATHE, CAD and ATH groups ($p=0.0016$, 0.0058 and 0.0032 respectively) and correlated with TGF- ·1 expression and cardiac overload.

Conclusions: The results of this study suggest a good correlation between miR-21 and TGF- ·1 in cardiovascular diseases.

Key words: miR-21, TGF-·1, cardiovascular disease

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