

Circulating miRNAs as Biomarkers for New-Onset Atrial Fibrillation

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INTRODUCTION: Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia. Some non-coding RNAs (miRNAs) have been involved in regulatory activity in arrhythmogenesis, targeting genes that contribute to the development of AF. **OBJECTIVE:** The present study aimed to evaluate the expression of candidate miRNAs in plasma of patients with AF and new-onset AF and its application as future markers for diagnosis and monitoring of disease. **MATERIALS AND METHODS:** miR-21, miR-133a, miR-133b, miR-150, miR-328 and miR-499 were selected as targets in this study through a prior literature review. They were isolated from plasma of individuals aged from 20 to 85 years old with AF (n = 17), new-onset AF (n = 5) and without AF (n = 15), where the latter was the control group. The results were analyzed by Real-Time PCR (RT-PCR) with *miScript SYBR Green PCR*. **RESULTS AND DISCUSSION:** We observed that miR-21, miR-133b, miR-328 and miR-499 had different levels of expression between the three groups (p <0.05). Increased expression of miR-21 (0.6-fold), miR-133b (1.4-fold), miR-328 (2.0-fold) and miR-499 (2.3-fold) in patients with new-onset AF when compared to AF and control subjects. The miR-133a and miR-150 expression did not differ among the groups. miR-21, miR-133b, miR-328 and miR-499 may be potential biomarkers for AF as well as for new-onset AF, for monitoring and for the diagnosis. **CONCLUSION:** These findings may contribute to the understanding of the process that triggers AF and suggest application these molecules as future biomarkers for AF.

Keywords: Atrial Fibrillation, biomarkers, miRNA, New-onset AF.

Financial Support: Dr. Wilmar Dias da Silva, Toxicology Project - UFRN / Butantan Institute / Mozambique. Capes process: 23038.000814 / 2011-83