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Assessing the miRNA Values of the Children with Rheumatic Carditis: A Possible Biomarker for Future?

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Introduction
MiRNAs are fine regulators of gene expression which participate in the regulation of almost every phase of cell physiology, including the development of immune cells and the adjustment of the immune response. In the studies with in-vitro and in-vivo model systems, that specific miRNAs have various roles in cardiovascular development and physiological functions are revealed. Furthermore, some studies have been performed to understand the role of the miRNAs about the myocarditis, heart failure and coronary artery diseases previously. However, their crucial role in the pathogenesis of other rheumatic diseases are investigated, miRNAs have not been studied in children with rheumatic carditis yet. Thus, the purpose of this study is to assess the miRNAs values of the patients with rheumatic carditis.
Methods
Rheumatic carditis patients of 36 children with mean age of 12.1±2.1 and 35 healthy controls were included in this study. Using High Throughput Real-Time PCR device (Fluidigm,Biomark,USA) with 96.96 Dynamic Array IFCs we analyzed the expression of some miRNAs (hsa-miR-16-5p, hsa-miR-221-3p, hsa-miR-223-3p, hsa-miR-10a-5p, hsa-miR-24-3p, hsa-miR-92a-3p, hsa-miR-320a, hsa-miR-21-5p, hsa-miR-155-5p, hsa-miR-132-3p, hsa-miR-146a-5p, hsa-miR-499a-5p, hsa-miR-1, hsa-miR-125, hsa-miR-196a-5p, hsa-miR-130b-3p, hsa-miR-133b, hsa-miR150-5p,hsa-miR-204-5p ve hsa-miR-203a).
Results
There were two-valve involvement in 20 patients (55.6%) and one-valve involvement in 16 patients (44.4%). Hsa-miR-16-5p (-1.46 fold, $p<0.01$), hsa-miR-223-3p (-1.46 fold, $p<0.01$), and hsa-miR-92a-3p (-1.27 fold, $p<0.05$) of the children with rheumatic carditis were lower than those of controls. Whereas, concentrations of other examined miRNAs resulted not differently expressed between the groups.
Conclusion
Our results demonstrated that significant down regulation of hsa-miR-16-5p, hsa-miR-223-3p and hsa-miR-92a-3p in children with rheumatic carditis. Thus, due to this is the first study in this patient group, in order to find out whether these miRNAs might be helpful as biomarkers, further studies are required.