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miR-208a-5p and miR-135a-5p in Formalin Fixed Paraffin Embedded Endo-Myocardial Monitoring Biopsies Discriminate Rejection from Cardiac Infection

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Objectives: The aim of the present study is to test the ability of miRNAs to distinguish infection from rejection.

Methods: We chose randomly 46 monitoring FFPE-EMBs from 40 Heart transplanted (HTX) pts in the last two years. Levels of expression of miRNAs signature for ACR: miR-27b-3p; 29b-3p; 199a-3p; 208a-5p; 302b-3p, AMR: 208a-5p, 29b-3p, 135a-5p, 144-3p and for MR: 208a-5p; 126-5p; 135a-5p were quantified by real-time reverse transcription polymerase chain reaction (RT-qPCR). The discriminative ability of each miRNA for comparison between Rejection and Infection was assessed by univariate analysis of variance (ANOVA). Receiver-operating characteristic (ROC) curve analyses were performed to test the discriminating performance of single miRNAs.

Results: We tested all the miRNAs previously identified as biomarkers of rejection on FFPE-EMBs in cases with rejection and infection. The RT-qPCR analysis showed the statistically significant overexpression of miRNA-208a 5p (Bartlett's test p=0.0004) and miRNA 135a 5p (Bartlett's test p=0.0029) in infection. The ROC curves demonstrated a high sensitivity and sensibility for both miRNAs AUC 0.80 (I.C.95%:0.5981 to 1.002) and AUC: 0.78 (I.C 95%:0, 6228 to 0, 9456) respectively.

Conclusion: miRNA-208a-5p and miRNA-135a-5p tested in FFPE-EMBs have diagnostic ability to discriminate infection from rejection.

Biography:

Dr. Andrea Di Francesco was born in San Benedetto del Tronto (AP, Italy) on 1986.04.18. He holds a degree in Medical Biotechnolgy (2012), with a thesis titled "Functional validation of in vivo interaction between microRNAs and mRNA targets in DNA damage response". Ph.D. in Cardiovascular Pathology (2017) achieved thanks to his research on microRNAs as new biomarkers of different types of rejections in heart transplanted patients. He has been visiting research fellow at Ludwig-Maximillian University in Munich, Germany (8 months: February-October 2017), where he worked under the supervisor ship of Prof. Andreas Schober on the-in situ PCR applied on monitoring FFPE-EMBs in order to identify the cell type expressing the microRNAs.

Post-doc fellow research in Dept.of Cardiac Thoracic, Vascular Sciences and Public Health at the University of Padua. His research interests concern on microRNAs and exosomes as biomarkers of heart rejection, infections after transplantation and their role in the patho-physiological mechanism of cardiac allograft vasculopathy (CAV) in heart transplant, under supervisor ship of Prof. Annalisa Angelini. The outcome of his research was presented through oral presentations and posters during many national and international meetings. He had published 2 papers as first author in international ISI Journals and many others as co-author.