Abstract: P1705

**microRNA-21 as a prognostic biomarker of sacubitril/valsartan treatment response in heart failure with reduced ejection fraction**

**Authors:**
M Marketou¹, H Nakou², J Kontaraki¹, S Maragkoudakis¹, J Konstantinou¹, A Kostaki¹, D Papadopoulos¹, S Kassotakis¹, A Patrianakos¹, K Fragiadakis¹, M Platakis¹, O Theodosaki¹, A Alevizaki¹, P Vardas¹, F Parthenakis¹, ¹Heraklion University Hospital - Heraklion - Greece, ²Barts Health NHS Trust, arts Heart Centre, Barts Health NHS Trust / Institute of Cardiovascular Science - London - United Kingdom of Great Britain & Northern Ireland,

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Purpose: MicroRNAs (miRs) modulate cardiovascular development and disease by post-transcriptional gene expression regulation and thus they are emerging as potential biomarkers and promising therapeutic targets in cardiovascular disease. Although sacubitril/valsartan, a first in class angiotensin-receptor-neprylisin inhibitor (ARNI), has recently shown its benefits and safety in symptomatic patients with chronic heart failure with reduced ejection fraction (HFrEF), there is no evidence yet on predicted markers for its efficacy. The aim of this study is to evaluate miR-208b, miR-499, miR-21, miR-1, miR-133a and miR-26b gene expression levels as prognostic markers of sacubitril/valsartan treatment response in patients with HFrEF

Methods: We included 26 symptomatic patients (aged 68 ± 12 years) with chronic HFrEF (LVEF <35%) and New York Heart Association (NYHA) class II/III, who received sacubitril/valsartan (mean dose of 94 ± 43 mg/day) on optimal medical treatment. All patients underwent a serial assessment with standard conventional transthoracic and a two-dimensional speckle tracking echocardiography at baseline and at 6 months follow-up. MiRs expression levels in peripheral blood mononuclear cells were quantified by real-time reverse transcription polymerase chain reaction.

Results: Blood pressure 114/70 ± 9/6 mmHg did not show any significant change (from 114/72 ± 9/6 mmHg to 111/69 ± 10/5 mmHg, p=NS). Left ventricular global longitudinal peak strain (GLPS) showed a significant improvement during the 6 months follow-up (from -7.22 ± -1.2 % at baseline to -8.2 ± -0.9 %, p= 0.01). miR-21 gene expression levels at baseline revealed a significant positive correlation with the reduction of GLPS (r = 0.5, p < 0.001) which was independent of the patients’ clinical parameters.

Conclusions: Our data reveal that miR-21 is a strong prognostic marker of GLPS improvement following sacubitril/valsartan initiation and may discriminate patients with HFrEF at high likelihood of responding in sacubitril/valsartan therapy.