Abstract: **P750**

Coronary plaque microbial colonization in acute coronary syndrome as identified by the analysis of angioplasty balloons: a study of feasibility

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Background: The influence of gut microbiota on cardiovascular diseases is supported by numerous studies. Metabolome is the means through which microorganisms communicate with different cell types of immune system creating a signaling network. An alteration of gut microbioma and a consequent change in the metabolome, could interfere with cellular homeostasis in adaptive and innate immune system leading to proinflammatory and proatherogenic pathways activation. The influence of gut microbiota on immune system can be exerted also by metabolic-independent mechanisms through a direct bacterial translocation from gut due to altered intestinal permeability.

Purpose: The aim of the current study is to explore the presence of bacterial DNA on coronary plaque material obtained from angioplasty balloons during percutaneous coronary intervention (PCI) procedure in patients with stable chronic angina (SA) and acute coronary syndrome (ACS).

Methods: Angioplasty balloons were obtained, during PCI of the culprit lesion after the first dilatation at high pressure, from ACS (n=23) and SA (n=23) patients. DNA was isolated from washed plaque material using automated QIAsymphony extraction system and the presence of microbial DNA was determined employing PCR by 16S rRNA amplification using the following primers: Gray28F (5'-TTTGATCNTGGCTCAG) and Gray519R (5'-GTNTTACNGCGGCKGCTG). At all stages, strict aseptic techniques were used. Control samples containing sterile water instead of plaque material were run in parallel to monitor for sterility of reagents. Results are shown as percentage of bacterial DNA positivity.

Results: In SA patients, 34.8% of analysed balloons were positive for bacterial DNA amplification while in ACS patients the percentage of positivity was 65.2% (p=0.039). These results could suggest a major bacterial translocation and plaque accumulation in ACS patients as compare with SA and a possible role in plaque instability.

Conclusions: Our preliminary results indicate, for the first time, feasibility of bacterial DNA amplification on the scarce plaque material obtained from angioplasty balloons demonstrating the presence of bacteria metagenome in coronary plaques. Further studies will be necessary to identify the bacterial species and to understand the mechanism of bacterial translocation.