Abstract: **P524**

Low molecular weight-hyaluronan (LMW-HA) tones down the expression of monocytes-CD31 from ACS patients in subset-dependent manner

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**Topic(s):**
Basic Science - Cardiac Diseases: Biomarkers

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**Background/Introduction:** CD31 molecule is involved in the modulation of both innate and adaptive immunity with a prevalent inhibitory effect. However, the main trigger of its alteration is still under the eyes of scientific investigation. It is well known that low molecular weight-hyaluronan (LMW-HA) is a key mediator in the pathogenesis of several chronic inflammatory conditions such as cardiovascular diseases by now.

**Purpose:** Aim of this study is to investigate the inflammatory role of HA in ACS patients by evaluating the monocyte expression of CD31 in basal conditions and after incubation with HA in its high (HMW-HA) and low molecular (LMW-HA) sizes, and with E. Coli-LPS as positive control.

**Methods:** We isolated peripheral blood mononuclear cells (PBMCs) from Healthy Control (HC) subjects, Stable Angina (SA) and Acute Coronary Syndrome (ACS) patients. Cells were incubated with HMW-HA, LMW-HA and E. Coli-LPS for 16h. We assessed CD31 protein expression on CD14++CD16−, CD14++CD16+ and CD14+CD16− monocytes using the flow-cytometry assay (FACS).

**Results:** We found a significant decrease of CD31 protein surface expression (expressed as mean fluorescence intensity, MFI) after LMW-HA treatment only on CD14++CD16+ from ACS patients (Mean±SEM: NT vs LMW-HA: 38.71±3.7 vs 29.99±4.2; P=0.01), but not in those of HC and SA. No effects were observed after HMW-HA stimulation in all groups (Figure 1A, B and C). Interestingly, detailed analyses displayed a significant loss of expression only in presence of the CD14 cell-surface molecule, since CD14+CD16+ subset did not show a CD31 alteration after LMW-HA incubation. All the three subsets showed a strong response after the LPS stimulus (Figure 1D).

**Conclusion(s):** Our data show that the pro-inflammatory stimulus of LMW-HA in monocytes is subset-dependent in patients presenting with ACS, with a significant decrease especially on CD14++CD16+ monocytes. Although further analyses are needed, the hyaluronan-pathway might represent a molecular therapeutic target for restoring the inhibitory role of the CD31 immuno-receptor within a specific subset of ACS patients.
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