ENDOTHELIAL PROGENITOR CELLS RECRUITMENT CORRELATE WITH CORONARY ARTERY DISEASE SEVERITY

Poster Contributions
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Background: Despite many studies investigated the level and function of peripheral blood Endothelial Progenitor Cells (EPCs), less scientific evidence concerning the presence and the role of EPCs in human myocardium exists. Our study aimed to investigate EPC density in atrial appendage, a well known source of different stem cells, and EPC blood levels in patients (pts) with coronary artery disease (CAD) undergoing to bypass and in pts undergoing to Isolated Valve Surgery (IVS) with no CAD.

Methods: We enrolled 36 consecutive pts: 22 CAD pts (mean age 76±5) and 14 IVS pts (mean age 75±7). Blood sample was collected and analyzed by flowcitometry in order to evaluate peripheral EPC levels (EPC/ml), whereas right atrial appendage segment was isolated during cardioplegia induction and immunehistochemical analysis was performed in order to quantify tissue EPC number (EPC/mm2). The normality of distributions of EPC numbers was verified using a one-sample Kolmogorov-Smirnov test. EPC levels were then compared with Student’s t-test corrected with Fisher’s exact probability test. A p value < 0.05 was considered statistically significant.

Results: EPC density values (EPC/mm2) were 0.219 ± 0.192 in IVS pts and 0.533±0.522 in CAD pts. EPC blood levels (EPC/ml) were 87.464±62.246 in IVS pts and 57.418±32.236 in CAD pts. In CAD pts, compared to IVS pts, we demonstrated a significant increase (p<0.05) of EPC tissue density and an EPC blood level decrease (p<0.05).

Conclusions: We hypothesize that the presence of CAD disease and the consequent chronic ischemia could be a stimulus to increase bone marrow mobilization, recruitment and homing in myocardium. These results allow us to support the hypothesis of EPC involvement in the reparative mechanisms of ischemic myocardium.