EXPANSION OF CD4+CD28null T LYMPHOCYTES IN CORONARY BLOOD OF PATIENTS WITH ST-ELEVATION MYOCARDIAL INFARCTION

ACC Poster Contributions
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Background: Atheroesclerosis is a chronic inflammatory disease regulated by T lymphocyte subsets. The CD4+ CD28null T cells, with a functional profile that favors inflammation and atherosclerosis, have been found expanded in peripheral blood of patients with an acute coronary syndrome and in unstable coronary plaques. In the present study, we investigated the levels of CD4+CD28null T cells within the culprit coronary artery of patients with ST-segment elevation myocardial infarction (STEMI) treated by primary angioplasty.

Methods: A total of 26 patients with STEMI within 24 hours of symptom onset were included. Blood samples were taken during the coronary catheterization, from the arterial access and from the culprit coronary artery distal to the lesion using a monorail aspiration catheter. Peripheral and intracoronary blood T cells subsets were analyzed by 4-color flow cytometry, using anti-CD4, anti-CD8, anti-CD28, anti-CD3, anti-CD19, anti-CD69, anti-CD25, anti-CD16, antiCD-56 and anti-FoxP3 human monoclonal antibodies.

Results: The CD4+CD28null T cell frequency was significantly higher in the intracoronary blood than in peripheral blood samples (median 2.99% [range 0.11% to 43.1%] vs 2.84% [range 0.06% to 28.3%], respectively, p=0.017). There were no significant differences in the levels of CD4+ and CD8+ T lymphocytes subset, B lymphocytes, NK and NKT cells and regulatory T cells between peripheral and intracoronary blood.

Conclusions: Overall our results show that pro-inflammatory CD4+ CD28null T cells are preferentially located at the occluded coronary artery of patients with STEMI, suggesting a pathophysiological role of this population in coronary atherotrombosis.