ENDOTHELIAL FUNCTION AND CIRCULATING CD4 T CELLS IN PATIENTS WITH UNSTABLE ANGINA

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Background: Previous studies support the crucial role of immune responses in the development and progression of atherosclerosis. CD4+CD28null T cells and CD4+CD31- T cells represent two specific subsets of circulating CD4+ T cells that affect endothelium. However, their accurate role on endothelial function remains controversial. We examined the association between the frequencies of these T cells subsets and endothelial function in patients with unstable angina compared to healthy individuals.

Methods: Twenty nine patients with unstable angina (23 males, mean age 61 ± 2 years) and fifteen healthy controls (8 males, mean age 58± 2 years) were studied. Endothelial function was evaluated by estimating the flow mediated dilation (FMD) of the brachial artery. Venous blood samples were taken at the time of the index event for the patients with unstable angina. Circulating total CD4+ T cells, CD4+CD28null T cells, CD4+CD28+ T cells, CD4+CD31+ T cells and CD4+CD31- T cells were analyzed on fresh blood samples by flow cytometry.

Results: Patients with unstable angina had significantly impaired FMD than healthy controls (5.12±0.47 vs 8.24±0.713, p=0.001) that was correlated with a significant increase in the frequency of circulating CD4+CD31- T cells when these cells were expressed as percentage of CD4+ T cells (83.95±2.349 vs 72.76±4.803, p=0.02) and as percentage of the whole T cells (33.54±2.721 vs 24.49±3.3, p=0.029). However, there was no significant difference in the percentage of total CD4+ T cells between the two groups (37.06±2.542 vs 32.84±3.598, p=0.15), either in the frequency of CD4+CD31+ T cells (5.57±0.632 vs 8.33±1.773, p=0.346), CD4+CD28null T cells (8.1±0.949 vs 6.63±1.55, p=0.241) or CD4+CD28+ T cells (30.22±2.116 vs 25.51±3.652, p=0.157) when was expressed as percentage of the whole number of T cells.

Conclusions: The findings of the present study demonstrate that patients with unstable angina have significantly impaired FMD and significantly higher frequencies of CD4+CD31- T cells. These findings suggest that the increased levels of circulating CD4+CD31- T cells may cause a poor mechanical endothelial response in patients with unstable angina.