

Racial Differences in Vascular Function

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Objective:

Racial disparities are evident in regards to cardiovascular health and prevalence. Currently, there have not yet been any studies investigating the differences in markers of vascular function between Hispanics (HS), Caucasians (CA), and African Americans (AA). This study sought to assess the differences in vascular function at the endothelial cell level between these racial groups.

Methods:

Three human umbilical vein endothelial cell (HUVEC) lines from different donors with HS, CC, and AA backgrounds were used. All cells were grown until confluent before cell medium and cell lysate was harvested. The cell medium was collected for the measurement of Interleukin 6 (IL-6) in an ELISA assay kit. The harvested cell lysate was used for western blotting for the measurement of Endothelial Nitric Oxide Synthase (eNOS), Phosphorylated Endothelial Nitric Oxide Synthase (p-eNOS), and Endothelin Converting Enzyme (ECE).

Results:

The expression of eNOS in both the CC and HS cell lines was significantly lower when compared to the AA cell lines (p£ 0.001). p-eNOS expression was significantly higher in the HS cell lines compared to both the AA and the CA cell lines (p£ 0.001). The p-eNOS to eNOS ratio was significantly lower in both the AA (p£ 0.03) and CA (p£ 0.001) cell lines compared to the HS cell lines. ECE expression was significantly higher in the HS cell lines compared to the AA cell lines (p£ 0.001). IL-6 levels were significantly higher in the CA and HS cell lines compared to the AA cell lines (p£ 0.001).

Conclusions:

Differences in endothelial cell biology that could affect function were evident among cell lines of different racial origin.