Endothelial progenitor cells are associated with cardiovascular outcome in patients with peripheral artery disease

Authors:
G. Pesau¹, C. Hoebaus¹, B. Zierfuss¹, R. Koppensteiner¹, G.H. Schernthaner¹, ¹Medical University of Vienna - Vienna - Austria ,

Topic(s):
Peripheral Vascular and Cerebrovascular Disease – Epidemiology, Prognosis, Outcome

Citation:
European Heart Journal ( 2019 ) 40 ( Supplement ), 1250

Background and introduction: Endothelial dysfunction and associated cells are an important cornerstone in the development and progression of peripheral artery disease (PAD). Endothelial progenitor cells (EPC) are released from the bone marrow and have exhibited the potential for cardiovascular repair. Higher EPC levels have been linked to longer event-free survival in coronary artery disease. Similar evaluation of EPC on mortality in PAD is lacking.

Purpose: The current study aimed to evaluate the possible association between EPC levels and mortality in PAD patients.

Methods: EPC were measured in 367 PAD patients (age 69.22±10.3, 66.5% male, Fontaine stage I-II) by flow cytometry using the cell surface marker CD34+ and CD309+. Patients were followed for seven years to assess all cause and cardiovascular mortality. Patients were categorized into quartiles according to EPC levels for further analyses. Statistics included Kaplan-Meier and Cox regression.

Results: 89 patients died over the observation period. ICD-codes indicated a cardiovascular cause in 58 patients. The group with the highest count of EPC showed a trend towards higher all-cause mortality (p=0.070) and a significant association with cardiovascular mortality (p=0.002). Multivariable adjustment for age, c-reactive protein, systolic blood pressure, renal function (creatinine and urinary albumin), low density lipoprotein cholesterol, HbA1c, and smoking status revealed the EPC quartile to be an independent risk factor for cardiovascular mortality (p=0.016).

Conclusion: Increased levels of CD34+CD309+ cells are independently associated with long-term cardiovascular mortality in PAD patients.