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Vascular Medicine

PROGNOSTIC PLAQUE BIOMARKERS FOR THE RISK STRATIFICATION IN PERIPHERAL VASCULAR DISEASE

Poster Contributions
Poster Hall B1
Saturday, March 14, 2015, 10:00 a.m.-10:45 a.m.

Session Title: New Findings in Vascular Inflammation and Endothelial Function
Abstract Category: 45. Vascular Medicine: Non Coronary Arterial Disease
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Background: Patency rates are still suboptimal in patients with peripheral artery disease (PAD) undergoing percutaneous intervention. Atherosclerotic plaque characteristics may be predictive of future events in patients with PAD.

Methods: Excised plaques from 113 de novo lesions of 92 symptomatic patients were evaluated following directional atherectomy (SilverHawk® or TurboHawk™ Peripheral Plaque Excision Systems (Covidien/ev3, Plymouth, MN) of the superficial femoral artery during conduction of the DEFINITIVE LE trial. Immunohistochemistry was performed to stain for macrophages (CD68, CD163), T-lymphocytes (CD3), HLA-DR, red blood cells (glycophorin A), endothelial cells (ulex), smooth muscle cells (HHF), Toll-like receptor 4, RAGE and ENRAGE. In addition, in 20 randomly selected cases RNA and protein profiling were performed for total of 90 genes and 15 proteins.

Results: Histology showed acute or organizing thrombus in 27 patients (29%). Patients with thrombus had significantly higher CD163, HLA-DR, and glycophorin A expression (p=0.01, p=0.02 and p=0.01) than those without thrombus. Thrombosis cases also showed increased expression of numerous inflammatory genes such as TNF, IL-8 and chemokines (CCL17, 26, CXCL1, 3, and 6) as well as increased protein levels including IL-6 and IL-8. Primary patency at 6 month in patients with presence of thrombus was significantly lower than in patients without thrombus (59% [10/17] vs. 87% [40/46], p=0.014), while this effect was not sustained at 12 months (61% [14/23] vs. 67% [42/63], p=0.62).

Conclusion: The current analysis revealed that peripheral atherothrombotic plaque is associated with increased expression of inflammatory markers and worse patency outcome at 6 months. However, this early distinguishing feature was not found to be of predictive value with respect to clinical outcome at 12 months.