Expression of a Disintegrin and Metalloprotease in Human Abdominal Aortic Aneurysms

Objectives: The a disintegrin and metalloprotease (ADAM) family of metalloproteases possesses a proteolytic function and activates various inflammatory factors. Their expression pattern in an abdominal aortic aneurysm (AAA) is as yet unknown. The aim of this study was to make a detailed analysis of the expression of ADAMs 8, 9, 10, 12, 15 and 17, and their tissue inhibitors of metalloprotease (TIMP)-1 and TIMP-3 in patients with AAA.

Design: The aortic vessel walls of AAA patients (n = 20) and non-aneurysmal aortic specimens (n = 10) were obtained by conventional surgical repair and autopsy. SYBR green-based real-time PCR, histology and immunohistochemistry were performed on all samples.

Main Outcome Measures: Quantitative expression analysis and the localisation of various ADAMs in AAA.

Results: ADAMs tested in our study were expressed in both AAA and control aorta without any significant differences between the groups. In contrast, expression of TIMP-1 was significantly reduced in AAA compared to control vessels. Smooth muscle cells (SMCs), neovessels and macrophages were positive for all ADAMs and TIMPs tested. Infiltrates were negative for TIMP-3, and luminal endothelial cells were positive for ADAMs 15 and 17. A significant positive correlation was observed between ADAMs 10, 12, 15, 17, TIMP-3 and SMCs.

Conclusion: ADAMs are constitutively...
expressed in normal aortic vessel walls and AAA, particularly in SMCs.