Introduction: This study was undertaken to verify if simvastatin modulates Cav-1/eNOS expression and if this modulation is associated with changes in pro- and anti-inflammatory cytokines and Toll-like receptor 4 (TLR4) in abdominal aortic aneurysm (AAA).

Methods: This was undertaken on non-statin (n=12) and simvastatin-treated patients (n=24) who underwent open AAA repair. Patients were treated with simvastatin at a dose of 20 or 40 mg/day for at least 6 months. The tissue samples of AAA wall were analyzed for Cav-1, eNOS, interleukin 6 (IL-6), IL-10, IL-17 and TLR4 at the gene and protein level.

Results: Simvastatin treatment significantly and dose-dependently decreased Cav-1 and increased eNOS expression in AAA wall (p<0.05 and p<0.01, respectively). The changes in Cav-1 and eNOS were associated with increased concentration of IL-10 (p=0.055) but not IL-6, IL-17 or TLR4 expression in AAA wall.

Conclusions: Simvastatin may modulate Cav-1 and eNOS expression in aneurysmal wall indicating a new beneficial role of statins in AAA patients.

Recent Publications

Biography
Aleksandra Piechota Polanczyk is currently employed as an Associate Professor at the Department of Medical Biotechnology, at the Jagiellonian University in the frame of the project entitled: Role of heme oxygenase 1 in the development and progression of abdominal aortic aneurysm. She received her PhD in Medicine with specialty of Medical Biology in 2011. She was a leading Researcher in Prof. Ihor Huk research group (VASLAB) at the Medical University of Vienna (Austria) with whom she is now cooperating. She is an author and a co-author of 37 publications published in Polish and foreign international journals (28 original papers and 8 review articles). Her research interests focuses on finding of new anti-oxidative and anti-inflammatory proteins that could be potential markers and/or targets in treatment of gastrointestinal and cardiovascular diseases, as well as the role of Nr2 and heme oxygenase 1 in cellular adaptation to oxidative stress and inflammatory reactions.

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