

Oxysterols: A Likely Molecular Link Between Hypercholesterolemia & Pathology in Humans

Oksisiteroller: İnsanda Hiperkolesterolemi ve Patoloji Arasında Olası Moleküler Bağlantı

Giuseppe POLI,^a
Gabriella LEONARDUZZI^a

^aDepartment of Clinical and
Biological Sciences,
University of Turin at San Luigi Hospital,
10043 Orbassano (Turin), ITALY

Yazışma Adresi/Correspondence:
Giuseppe POLI
Department of Clinical and
Biological Sciences,
University of Turin at San Luigi Hospital,
10043 Orbassano (Turin), ITALY
giuseppe.poli@unito.it

ABSTRACT Cholesterol oxidation products, i.e. oxysterols, have only recently attracted the attention of biomedical investigators. This sudden increase in interest probably derives from the most recent hypotheses on the pathogenesis of chronic human diseases that are closely influenced by associated inflammation, like atherosclerosis, Alzheimer's disease, inflammatory bowel diseases, colon cancer. Indeed, a very efficient way for inflammation to stimulate the further evolution of diseases associated with impaired cholesterol metabolism is to favour the oxidation of cholesterol via the generation of reactive oxygen species: oxysterols have been consistently demonstrated to be at least one or two orders of magnitude more reactive than unoxidized cholesterol, showing remarkable pro-inflammatory, pro-apoptotic, and pro-fibrogenic effects. In particular, oxysterols have been shown to significantly contribute to the vascular remodelling due to atherosclerosis, as they are involved in various key steps of this complex process, such as endothelial cell dysfunction and adhesion of circulating blood cells, foam cell formation and macrophage/SMC interaction.

Key Words: Oxysterol, hypercholesterolemia, inflammation, atherosclerosis

Türkiye Klinikleri J Med Sci 2009;29(Suppl):S19