

Pathophysiology of Atherosclerosis

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Abstract

Atherosclerosis is the main risk factor for cardiovascular disease (CVD), which is the leading cause of mortality worldwide. Atherosclerosis is initiated by endothelium activation and, followed by a cascade of events (accumulation of lipids, fibrous elements, and calcification), triggers the vessel narrowing and activation of inflammatory pathways. The resultant atheroma plaque, along with these processes, results in cardiovascular complications. This review focuses on the different stages of atherosclerosis development, ranging from endothelial dysfunction to plaque rupture. In addition, the post-transcriptional regulation and modulation of atheroma plaque by microRNAs and lncRNAs, the role of microbiota, and the importance of sex as a crucial risk factor in atherosclerosis are covered here in order to provide a global view of the disease.

Keywords: atherosclerosis; endothelial dysfunction; atheroma plaque; risk factors; microbiota; oxLDL; microRNA; lncRNA