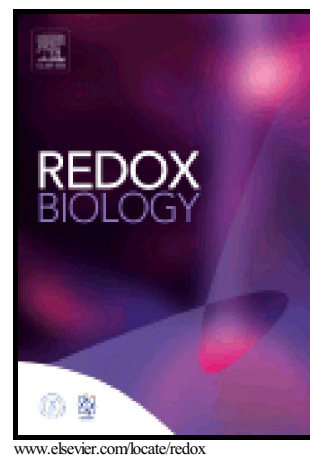


Impact of High Cholesterol and Endoplasmic Reticulum Stress on Metabolic Diseases: An Updated Mini-Review

Erdi Sozen, Nesrin Kartal Ozer



PII: S2213-2317(17)30078-2
DOI: <http://dx.doi.org/10.1016/j.redox.2017.02.025>
Reference: REDOX594

To appear in: *Redox Biology*

Received date: 31 January 2017
Revised date: 27 February 2017
Accepted date: 28 February 2017

Cite this article as: Erdi Sozen and Nesrin Kartal Ozer, Impact of High Cholesterol and Endoplasmic Reticulum Stress on Metabolic Diseases: An Updated Mini-Review, *Redox Biology*, <http://dx.doi.org/10.1016/j.redox.2017.02.025>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Impact of High Cholesterol and Endoplasmic Reticulum Stress on Metabolic Diseases: An Updated Mini-Review

Erdi Sozen, Nesrin Kartal Ozer*

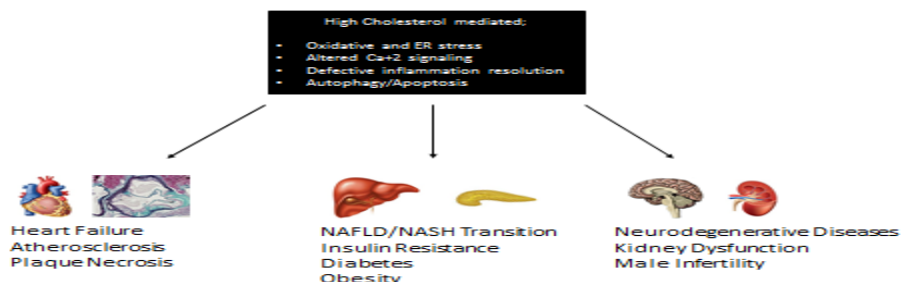
Department of Biochemistry, Faculty of Medicine, Genetic and Metabolic Diseases Research and Investigation Center (GEMHAM), Marmara University, 34854, Maltepe, Istanbul, Turkey

*Corresponding author. nkozer@marmara.edu.tr

Abstract

Endoplasmic reticulum (ER) is the major site of protein folding and calcium storage. Beside the role of ER in protein homeostasis, it controls the cholesterol production and lipid-membrane biosynthesis as well as surviving and cell death signaling mechanisms in the cell. It is well-documented that elevated plasma cholesterol induces adverse effects in cardiovascular diseases (CVDs), liver disorders, such as non-alcoholic fatty liver disease (NAFLD), non-alcoholic steatosis hepatitis (NASH), and metabolic diseases which are associated with oxidative and ER stress. Recent animal model and human studies have showed high cholesterol and ER stress as an emerging factors involved in the development of many metabolic diseases. In this review, we will summarize the crucial effects of hypercholesterolemia and ER stress response in the pathogenesis of CVDs, NAFLD/NASH, diabetes and obesity which are major health problems in western countries.

Graphical abstract



Abbreviations

ATF6, activating transcription factor 6; CHOP, C/EBP-homologous protein; CVD, cardiovascular disease; eIF2 α , eukaryotic translation initiator factor 2 α ; ER, endoplasmic reticulum; GRP78, glucose regulated protein 78; IDL, intermediate-density lipoprotein; IRE1, inositol requiring kinase 1; JNK, c-Jun N-terminal kinase; LDL, low-density lipoprotein; NAFLD, non-alcoholic fatty liver disease; NASH, non-alcoholic steatosis hepatitis; Ox-LDL, oxidized-LDL; PERK, RNA-activated protein kinase-like endoplasmic reticulum kinase; ROS,

Download English Version:

<https://daneshyari.com/en/article/8286999>

Download Persian Version:

<https://daneshyari.com/article/8286999>

[Daneshyari.com](https://daneshyari.com)