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Cardiovascular diseases: Focus on endoplasmic reticulum stress and Nrf2 signalling

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This presentation is intended primarily to summarize the understanding of the interrelated roles of endoplasmic reticulum (ER) stress, oxidative stress and inflammation in cardiovascular diseases. Insults interfering with ER function lead to the accumulation of unfolded and misfolded proteins in the ER. An excess of proteins folding in the ER is known as ER stress. This condition initiates the unfolded protein response (UPR). When the UPR fails to control the level of unfolded and misfolded proteins, ER-initiated apoptotic signalling is induced. Moreover, the role of the protective nuclear erythroid-related factor 2 (Nrf2)/antioxidant-related element (ARE) and the activation of the pro-inflammatory nuclear factor-kappa B (NF-kB) are analyzed. Oxidative stress, inflammation and ER stress are closely entwined phenomena. They are involved in the pathogenesis of different cardiovascular diseases. Current literature data are presented, focusing on three topics of related pathologies: atherosclerotic plaque, coronary artery disease and diabetes. This presentation provides a basic platform for study and application to several other conditions in which oxidative stress, ER stress and inflammation are key features. Future studies in this area may identify the most promising molecules to be investigated as common targets for cardiovascular disease.

Biography

Chiara Mozzini pursued her Medical Doctor Degree from the University of Brescia, Italy (2006). She is a Board Certified Specialist in Internal Medicine at the University of Verona, Italy (2012). Section of Internal Medicine University of Verona, Italy Medical Doctor Degree University of Brescia (Italy). She received her PhD certification in clinical and experimental medical sciences. She is an Adjunct Professor (Researcher of type A)- Section of Internal Medicine at the University of Verona, Italy. Her research field of interest includes: atherosclerosis, cardiovascular diseases, coronary artery disease, diabetes, oxidative stress, endoplasmic reticulum stress and ultrasound (cardiac-abdominal-vascular). Her H-index is 11.

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