



CALL FOR PAPERS

Abdominal obesity increases the risk of cardiovascular disease, such as atherosclerosis and infarction, favoring insulin resistance, and type 2 diabetes. However, progress in reperfusion therapy leads to prolongation of life expectancy, at the cost of increased incidence of diabetic cardiomyopathy and heart failure. It is thus necessary to discover new strategies to reduce the severity of these last pathologies in order to improve the patient well-being and to further increase longevity. Oxidative stress plays an important role in obesity-related cardiac disease including disruption of coronary microvessel function, abnormalities of diastolic function, atrial arrhythmias, ventricular fibrillation, and altered cardiac metabolism. The pathologies that affect the contractility of the heart seem to be due to remodeling of the heart via hypertrophy and/or fibrosis partly mediated by oxidative stress-induced overexpression of TGF β , whereas those affecting cardiac metabolism involve oxidative stress-mediated mitochondrial dysfunction and uncoupling. Obesity-mediated cardiac remodeling also involves an inflammatory process triggered by various adipokines (leptin, adiponectin, resistin, and angiotensin-2) and cytokines (IL-1 β , IL-6, and TNF- α). Several of these proinflammatory cytokines can directly increase intracellular oxidative stress. Moreover, excessive circulating free fatty acids also participate in cardiac pathologies since they induce the overexpression of CD36 leading to increased cardiac lipid uptake and enhanced β -oxidation. Indeed, higher β -oxidation rates stimulate mitochondrial reactive oxygen species overproduction whereas excessive fat uptake exacerbates diacylglycerol and ceramides accumulation, thus promoting cardiac insulin resistance. Several pharmacological interventions with cardioprotective effects are used to correct the different symptoms of the metabolic syndrome. These include angiotensin converting enzyme (ACE) inhibitors, angiotensin-2 receptor antagonists, calcium blocking agents, and insulin sensitizers. However, these agents are not without side effects and their effectiveness is limited to few symptoms of the metabolic syndrome and more importantly their effects on the heart remain obscured. Growing evidences suggest the need of natural and/or pharmacological compounds with efficient preventive and/or therapeutic effects on the heart of obese individuals.

We invite investigators to contribute original research articles as well as review articles that will stimulate the nascent effort in understanding the molecular basis of obesity-related cardiac disease with the hope to find new therapeutic strategies capable of preventing or treating these pathologies by focusing on the role of oxidative stress in cardiovascular pathophysiology.

Potential topics include, but are not limited to:

- ▶ The basic molecular and cellular mechanisms underlying cardiac hypertrophy and failure with regard to oxidative stress
- ▶ Autocrine, paracrine, and endocrine impacts of central and pericardiac adiposity on cardiac oxidative stress in obesity
- ▶ Mechanisms underlying obesity-induced oxidative stress in the heart and the impact of hepatic steatosis on myocardial damage
- ▶ Role of oxidative stress in the development of cardiac remodeling occurring during the metabolic syndrome
- ▶ The multiple myocardial processes and their physiological roles in the regulation of transcription, signaling, growth, metabolism, and contractile function in ischemia/reperfusion models
- ▶ The impact of obesity and oxidative stress on cardiac remodeling during aging
- ▶ Gender hormones (testosterone/estrogen) deprivation/replacement during aging and pathophysiological changes in the heart of myocardial infarction and ischemia/reperfusion models
- ▶ Lifestyle changes (physical training, caloric restriction) and cardiac protection in obese individuals with regard to adiposity, circulating cytokines, and oxidative stress
- ▶ Validation of existing cardioprotective strategies in obesity-related oxidative stress (metabolic syndrome, type 2 diabetes, and aging)
- ▶ New preventive and therapeutic strategies (lifestyle, nutrition, pharmacology, surgery, and others) dedicated to improve cardiac oxidative stress and function in obesity and its related disorders

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