

Special Issue on

Oxidative Stress and Inflammation in Diverse Hypoxic Conditions: From Bench to Bedside

CALL FOR PAPERS

Hypoxia is a common denominator in a wide range of physiological and pathological conditions, such as in tumors, atherosclerotic plaques, myocardial infarction, and stroke, and affects fundamental mechanisms as oxidative stress and inflammation through multiple signaling pathways. Yet, hypoxia is multifaceted; it can be sustained or intermittent, prolonged or acute, and tissue specific or whole body hypoxia.

Specifically, various paradigms of intermittent hypoxia associated with physiological and pathological conditions result in diverse and sometime opposing outcomes, depending on its severity, frequency, and chronicity. Thus different physiological measures, signaling pathways, and genetic-epigenetic expression are altered. These alterations which are also tissue specific do not necessarily resemble the outcomes of sustained hypoxia.

Sleep apnea is one such pathology with nightly intermittent hypoxia being its hallmark. It has been increasingly identified as a major public health problem due to its high prevalence and its association with cardio- and cerebrovascular diseases, metabolic morbidity, and more recently cancer risk, all of which contribute to increased mortality rates in these patients. Yet, it is also apparent that not all sleep apnea patients develop these associated comorbidities, which lead to the concept that "protective mechanisms" and "ischemic preconditioning" may occur as well. Moreover, various paradigms of brief intermittent hypoxia are also utilized for experimental ischemic preconditioning (also for post- and remote-conditioning) which confer protection to tissues and organs rather than damage and involve activation of reactive oxygen species- (ROS-) dependent signaling pathways and oxidative stress. Thus, some intermittent hypoxia patterns may indeed confer protection rather than damage as shown by a number of animal as well as human studies, implicating the specific patterns of intermittent hypoxia in the outcome.

In this special issue, we invite authors to contribute original research articles as well as review articles that can stimulate ongoing and continued efforts to understand the implications of various hypoxic paradigms associated with oxidative stress and inflammation in adults and children with sleep apnea as well as in animal models and in *in vitro* studies, or in other pathologies associated with intermittent or sustained hypoxia.

We encourage submission of work that describes potential diagnostic/predictive biomarkers as potential targets to develop innovative therapeutic strategies that may be useful in identifying patients at a higher risk for morbidities and mortality, who should be prioritized for treatment.

Potential topics include but are not limited to the following:

- ▶ Recent advances in oxidative stress/inflammation, signaling pathways, and gene expression at the molecular and cellular levels associated with various paradigms of hypoxia
- ▶ Oxidative stress/inflammation in animal models of intermittent hypoxia and in adults and children with sleep apnea
- ▶ Cancer and oxidative stress/inflammation in animal models treated with intermittent hypoxia and in patients with sleep apnea
- ▶ Effects of various paradigms of intermittent hypoxia and their consequences on various biomarkers
- ▶ Endothelial dysfunction, atherosclerosis, oxidative stress, and ischemic preconditioning in animal models of intermittent hypoxia and sleep apnea patients
- ▶ Severity, frequency, and chronicity dependent responses to intermittent hypoxia *in vitro*, in animal models and in sleep apnea patients
- ▶ The potential beneficial effects of some intermittent hypoxia paradigms and tissue specificity
- ▶ The potential beneficial effects of antioxidants in sleep apnea and in animal models of sleep apnea

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/omcl/oxist/>.

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