

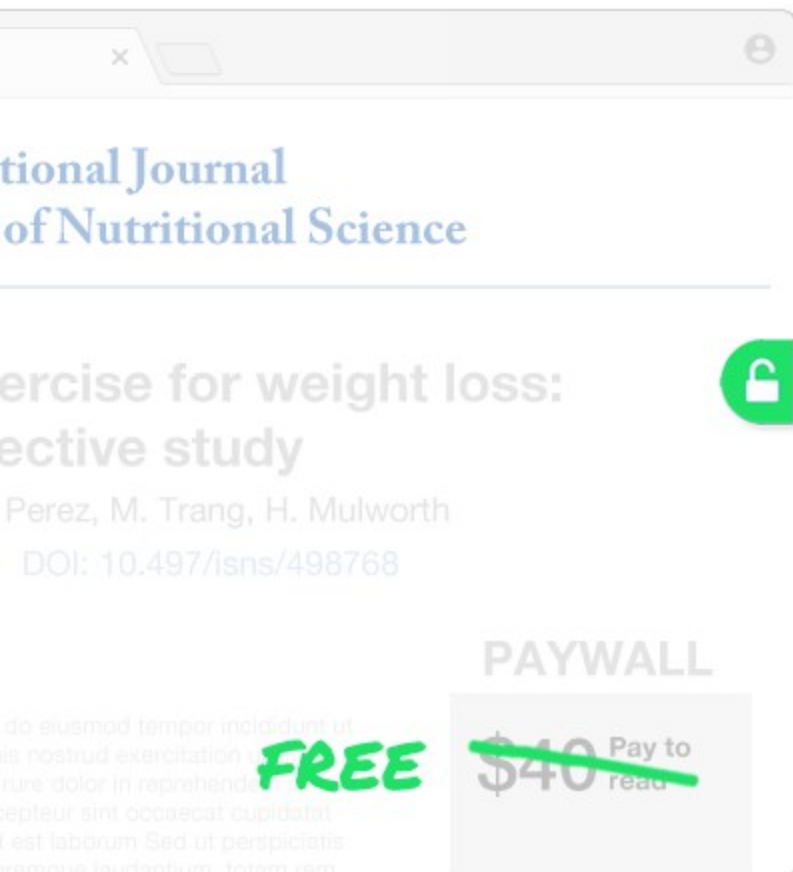
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BLOOD PRESURE RECOVERY – A MARKER OF HAEMODYNAMIC INSTABILITY IMPROVEMENT IN PATIENTS WITH INTERMEDIARY – HIGH RISK PULMONARY EMBOLISM

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Abstract



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Blood-pressure variability in patients with obstructive sleep apnea: current perspectives

[Oreste Marrone](#)¹ and [Maria R Bonsignore](#)^{1,2}

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Abstract

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Obstructive sleep apnea (OSA) is often associated with hypertension and other cardiovascular diseases. Blood pressure (BP) variability is part of the assessment of cardiovascular risk. In OSA, BP variability has been studied mainly as very short-term (beat-by-beat) and short-term (24-hour BP profile) variability. BP measured on consecutive heartbeats has been demonstrated to be highly variable, due to repeated peaks during sleep, so that an accurate assessment of nocturnal BP

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Blood-pressure variability in patients with obstructive sleep apnea: current perspectives

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Nature and Science of Sleep

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Abstract: Obstructive sleep apnea (OSA) is often associated with hypertension and other cardiovascular diseases. Blood pressure (BP) variability is part of the assessment of cardiovascular risk. In OSA, BP variability has been studied mainly as very short-term (beat-by-beat) and short-term (24-hour BP profile) variability. BP measured on consecutive heartbeats has been demonstrated to be highly variable, due to repeated peaks during sleep, so that an accurate assessment of nocturnal BP levels in OSA may require peculiar methodologies. In 24-hour recordings, BP frequently features a “nondipping” profile, ie, <10% fall from day to night, which may increase cardiovascular risk and occurrence of major cardiovascular events in the nocturnal hours. Also, BP tends to show a large “morning BP surge”, a still controversial negative prognostic sign. Increased very short-term BP variability, high morning BP, and nondipping BP profile appear related to the severity of OSA. Treatment of OSA slightly reduces mean 24-hour BP levels and nocturnal beat-by-beat BP variability by abolishing nocturnal BP peaks. In some patients OSA treatment turns a nondipping into a dipping BP profile. Treatment of arterial hypertension in OSA usually requires both antihypertensive pharmacological therapy and treatment of apnea. Addressing BP variability could help improve the management of OSA and reduce cardiovascular risk. Possibly, drug administration at an appropriate time would ensure a dipping-BP profile.

Keywords: sleep apnea, ambulatory blood-pressure monitoring, beat-by-beat measurements, blood-pressure dipping, morning blood-pressure surge

Introduction

Obstructive sleep apnea (OSA) is a well-known cardiovascular risk factor. In patients with OSA, cardiovascular diseases have increased incidence and are associated with worse functional outcomes and increased mortality.¹ Systemic hypertension, which is often found in OSA, can importantly affect cardiovascular health. Also, altered blood pressure (BP) variability may carry some additional risk for higher incidence and faster progression of cardiovascular disease.^{2,3} Both the degree and pattern of BP variability have prognostic implications. Many methods and calculations have been proposed for assessment of BP variability, but physiological and clinical meanings of each of them are not always clear.^{4,5} In this article, after a brief review of assessment and implications of BP variability in the general population, we focus on BP variability in patients with OSA, highlighting current methodological, clinical, and prognostic aspects.