

OVERVIEW

Hypertension is the most important cardiovascular risk factor and a leading cause of death in the world. The prevalence of hypertension is predicted to increase worldwide despite global efforts to control this important disease.

The sympathetic nervous system (SNS) is one of the major determinants of cardiovascular homeostasis. While acute SNS activation has a positive effect on the cardiac system, there is a lot of evidence that chronic SNS overactivity is associated with hypertension and increased cardiovascular risk. Importantly, there is an association between increased heart rate and coronary artery disease, cardiovascular disease and total mortality in patients with hypertension.

Most of the methods used to directly measure SNS activity cannot be used in daily clinical practice as these are confined to research laboratories. However, the easiest and most effective way to assess increased SNS activity is to measure heart rate, which is an outcome also measured by automatic blood pressure monitors. This makes it simple to include heart rate measurement in the determination of cardiovascular risk.

Heart rate reduction is associated with improvement of cardiovascular outcome, independently from blood pressure reduction and it should be considered as a target for treatment. Several drug classes can reduce sympathetic overdrive, including centrally-acting agents, alpha-blockers, beta-blockers, non-dihydropyridine calcium antagonists and ivabradine. Probably the most effective drugs to reduce heart rate are beta-blockers. Commonly used beta-blockers have different pharmacological characteristics, and beta-1 selectivity is probably the most important pharmacological parameter for heart rate reduction.

LEARNING OBJECTIVES

1. Describe the relationship between the SNS and hypertension
2. Understand how SNS activity can be assessed in everyday clinical practice
3. Know about the different treatment options to reduce SNS activity
4. Discuss how to choose the appropriate treatment to reduce heart rate for an individual patient.

TARGET AUDIENCE

This activity is designed for Cardiologists, General Practitioners, Internists and those treating patients with cardiovascular disorders.



FACULTY

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