Editorial

Management of Elevated Heart Rate in Essential Hypertension: Pathophysiologival Insights and Therapeutic Approach

For several aspects tachycardia may be considered the hidden risk factor.

In the general population tachycardia has been associated with increased total [1] and cardiovascular mortality (both for men and for women) [2], with an higher risk of vascular events [3, 4] and with a worst prognosis after an acute vascular event [5]. Intriguing lines of research suggest that for each species of mammals exists a predetermined number of heart beats in a lifetime, with an inverse semilogarithmic relation between heart rate and life expectancy [6]. Nevertheless of this, although clinic resting heart rate (RHR) is one of the cardiovascular parameters more easily measurable, rarely the cardiovascular risk of the general population is also evaluated in relation to the RHR. Several limitations and uncertainties exist, first of all the lack of a common standard of normality of RHR and of a shared cutoff between “safe” RHR and elevated RHR. [1], the concrete and relevant different prognostic value of elevated RHR between the two genders, [7], and the need for a reliable way of ascertainment of RHR, able to avoid the risk of “white coat tachycardia”, that may cause the measure of much higher values of RHR than the real for that subject (up to 45 beats per minutes higher) [8]. The evaluation and the clinical approach to elevated RHR in hypertensive subjects appear to be an even more complex problem. According to the latest guidelines provided by the European Society of Hypertension/European Society of Cardiology, it is suggested to the physicians to include the assessment of the RHR between the various clinical and instrumental elements useful to determine the cardiovascular risk of the hypertensive subject [9], but to date the value attributed to the RHR in the various clinical and experimental settings in which it has been evaluated is extremely variable. Sufficient to say that the proportion of the patients with high blood pressure and tachycardia varies widely in the various studies addressing this issue. Probably because RHR is influenced by a wide range of factors, first of all low level of physical activity in sedentary subjects [10-12], or simply be the expression of a different pathologic condition not yet clinically manifest, although some of these conditions such as sedentary itself [13, 14] or obesity [15] may be considered reversible with proper interventions.

In the past decades, higher values of RHR have often been attributed to hypertensive subjects than healthy controls as a result of the effects of the different factors leading to the development of essential hypertension itself [16, 17], preceding to the increased sympathetic tone. More recent lines of research deeply investigated the issue regarding the relationship between elevated RHR, high blood pressure and the sympathetic nervous system activity, providing new data, and new points of view [18-20]. The need for a greater clarity of this issue arises also from the lack of an appropriate therapeutic approach for this category of subjects. In fact, to date we are unable to say whether a reduction of RHR in hypertensive subjects with elevated RHR could confer any benefit in terms of life expectancy, mostly taking into account the conflicting results achieved by the intervention studies in which various β-blockers (which are expected to be the optimal therapeutic choice for this category of patients) have been used [21]. Against this background, I would like to express deep gratitude to Mr. Kazim Baig and Mr. Aamer M. Khan for their help and support. The hot topic. “Management of elevated heart rate in essential hypertension: pathophysiological insights and therapeutic approach”, firmly convinced that addressing different issues about the pathophysiology, the clinical value and the therapeutic approach of tachycardia in hypertension would be useful to improve the approach to this category of patients and therefore may be of interest to the readers.

In this special issue, we have ten reviews, written by leading authors in their respective fields, aimed to discuss and update the current knowledge about the optimal management of elevated heart rate in various clinical settings: diabetes [22], stroke [23], peripheral artery disease, [24], chronic kidney disease [25], heart failure [26] and finally obesity [27]. The following two reviews are quite linked, discussing the peculiarity represented by the presence in the same patient at the same time of elevated blood pressure and elevated heart rate. The seventh manuscript tries to answer the question of why not all the hypertensive subjects have also tachycardia [28] and the eighth one reviews the current evidence regarding the relationship between elevated heart rate and sympathetic nervous system in hypertension, critically revising the theory of “hyperkinetic circulation” [29]. The latest two reviews address the therapeutic aspect of the problem, discussing the ability of regular aerobic exercise to reduce heart rate [30], and the real efficacy of beta-blockers [31], that would be the best theoretical treatment for this subgroup of hypertensive patients, but is it really like that?

I strongly hope that the readers will appreciate the efforts of the authors and the editors, find the reviews interesting.

REFERENCES


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