Resting heart rate can predict cardiovascular morbidity and mortality. Measurements are easy to obtain, and monitoring heart rate can help in cardiovascular disease prevention and management.

Why measure resting heart rate?

The rates of death attributable to cardiovascular disease have declined over the years, yet the burden of disease remains. Almost half of all cardiovascular events occur among individuals without prior cardiovascular disease, although, they are at lower absolute risk compared with those with established cardiovascular disease (1). Epidemiologic evidence suggests that measurement of resting heart rate can be used to establish future risk relations in population (2). However, the prognostic importance of this simplest cardiovascular parameter has generally been overlooked.

In this issue of Tidsskriftet, Dalby & Gjesdal (3) argue that focus on heart rate should be increased, and measurements should be made part of regular clinic visits. As for today, heart rate is only monitored in certain subgroups such as coronary heart disease and heart failure patients (4). However, recording heart rate in the general population can provide an additional tool for predicting and monitoring cardiovascular health. Therefore, assessment of heart rate may be used as an important prognostic marker in both primary and secondary prevention.

Prolonged higher heart rate at rest increases the risk of new onset of hypertension, and is associated with metabolic abnormalities. It also contributes to the development and progression of coronary atherosclerosis, facilitates plaque destabilization, and initiates arrhythmias, leading to acute coronary events and sudden death (2, 4, 5).

The use of heart rate as a clinical parameter has strong advantages: costs are low and check up takes little time. It is an easy measure that is understandable for most individuals, making it useable for clinicians to include patients in their own health management. Moreover, changes in heart rate over time may confer supplementary information about cardiovascular health. Although high heart rate independently predicts risk of death, it may additionally indicate presence of other cardiovascular risk factors. Therefore, possible secondary causes of high heart rate such as hypoxemia, anemia, and drug use should be taken into consideration.

Clinicians should measure heart rate together with blood pressure, and follow same procedures (2). A heart rate higher than 80 beats per minute should ring an alarm bell. Now what are the first steps to take when high resting heart rate is observed? Exercise prescription is one obvious possible measure. As discussed by Dalby & Gjesdal, resting heart rate variability associated with physical exercise has gained much credit in recent years (4, 5). Exercise induced autonomic effects (an increase in parasympathetic but decrease in sympathetic activity), coupled with a possible reduction in intrinsic heart rate result in decreased heart rate at rest. Intensity of activity can be adapted individually. Current guidelines recommend exercise at high intensity (cycling, running, skiing) for at least 30 minutes for two to three times per week, or exercise at moderate intensity (fast walking, jogging) for at least 30 minutes almost every day. Future research is needed to assess the relative effects of exercise intensity on changes in heart rate.

Other factors that may change resting heart rate over time include drugs, diet, psychological status, interaction of genetics and environment. In keeping with the authors of present review, a balanced risk management of elevated resting heart rate should target lifestyle modifications including programme of regular aerobic exercise and diet intervention, or rational behavioral therapies to avoid chronic stress or depression.

Most data for association of resting heart rate with mortality in general population came from epidemiologic studies. One potential reason for physician inertia in using heart rate as a valid cardiovascular risk factor is the methodological bias associated with population studies. Nonetheless, epidemiologic investigations over history paved the way for translation of basic science into successful health interventions. A heart rate higher than 80 beats per minute at rest may be considered harmful in the general population, but should we treat it as extensively as other cardio-metabolic risk factors such as central obesity, smoking, hypercholesterolemia, or hypertension?

There is convincing evidence from studies that heart rate is directly associated with increased risk, beyond being a marker of an underlying pathophysiological abnormality. Heart rate measurements are easy to obtain, and serial assessment of resting heart rate may be used as an important prognostic marker for total and cardiovascular mortality. Treatment of high resting heart rate in healthy subjects without a medical history appears to be premature; nevertheless, data from literature is suggestive to recommend programs of regular physical activity for asymptomatic people with high resting heart rate who would benefit from measures of primary prevention.

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