Resting heart rate and ideal cardiovascular health: the Paris Prospective Study III

Hazrije Mustafic1*, Catherine Guibout2, Bruno Pannier3, Christof Prugger2, Marie-Cécile Perier2, Muriel Tafflet2, Frédérique Thomas3, Pierre Boutouyrie4, Xavier Jouven1, Jean-Philippe Empana2

1 Paris Cardiovascular Research Center (PARCC) - INSERM U970 - HEGP, Cardiovascular Epidemiology - Sudden Death Expertise Center, Paris, France
2 Paris Cardiovascular Research Center (PARCC) - INSERM U970 - HEGP, Cardiovascular Epidemiology, Paris, France
3 Centre d’Investigations Preventives et Cliniques, Paris, France
4 Paris Cardiovascular Research Center (PARCC) - INSERM U970 - HEGP, Pathophysiology and pharmacology of large arteries, Paris, France

KEYWORDS: resting heart rate, cardiovascular health promotion, cardiovascular prevention.


*ADDRESS FOR CORRESPONDENCE: PARCC - INSERM U970, Team 4 "Cardiovascular Epidemiology and Sudden Death Expertise Center", 56, rue Leblanc, 75015 Paris, France. / Phone: +33629722857 / E-mail: hazrije.mustafic@inserm.fr

PURPOSE: Lower resting heart rate (RHR) has been related to lower risk of cardiovascular (CV) disease in large prospective studies. In 2010, the American Heart Association’s 2020 Strategic Goals defined a new concept of ideal CV health composed of 7 modifiable health metrics in order to prevent CV disease. We hypothesized that ideal CV health status would be associated with lower RHR.

METHODS: We included 5166 men and women aged 50-75 years who enrolled in the Paris Prospective Study III (PPS3) from 2008 to 2011 and who were free of overt CV disease and treatment. The CV health status was defined as poor (0 or 1 health metric), intermediate (2, 3 or 4) and ideal status (5, 6 or 7). RHR was measured at rest after 10 minutes in supine position and categorized in sex specific quartiles. The likelihood of a lower RHR (first quartile) associated with ideal CV health status was explored by logistic regression analysis.

RESULTS: Mean age was 58.9 years and 60.6% were men. The median RHR was 61 bpm (IQR: 55, 67) in men and 62 (IQR: 57, 68) in women respectively. The prevalence of ideal and poor CV health status was 13.6% and 14.1% respectively. The prevalence of ideal CV status decreased while that of poor CV health status increased with RHR quartiles (P<0.001, Figure 1). After adjusting for age and sex, participants with intermediate (OR: 1.90, 95% CI [1.51-2.39]) and ideal CV health status (OR: 2.93, 95% CI [2.23-3.85]) were more likely to have a lower RHR compared with those with poor CV health status respectively.

CONCLUSION: By showing that ideal CV health status had a three-fold increased odds of having low RHR, the current data support the potential benefit that may be expected through the promotion of primordial prevention of CV disease.

DECLARATION OF INTEREST: None

LITERATURE: