

Erectile dysfunction and heart rate recovery. Is it autonomic nervous system?

To the Editor,

Ulucan et al. (1) observed in their valuable and interesting study that heart rate recovery (HRR) indices were attenuated in patients with erectile dysfunction when compared with healthy controls entitled "Deterioration of heart rate recovery index in patients with erectile dysfunction" published *Anatol J Cardiol* 2016; 16: 264-9. In addition, they observed in their analysis that HRR at 1 min (HRR1) and 3 min were independently associated with the presence of erectile dysfunction. Exercise testing can be abruptly terminated (cessation of exercise) with the patient in the standing or sitting position (no "cool-down" period) or when the patient keeps walking in a predetermined speed and inclination (cool-down period), which can be a 2-min cool-down at 1.5 mph at 2.5 grade or 1-min cool-down at 1 mph at 0% inclination (2, 3). In protocols using cool-down, HRR1 is calculated by taking the difference between the heart rate at peak exercise and heart rate 1 min later, which is 1 min after the beginning of the cool-down period (2). Similarly, in exercise tests that stop abruptly, HRR1 is calculated by taking the difference between the heart rate at peak exercise and heart rate 1 min later at which time the patient is in complete rest in the supine or sitting position. Abnormal HRR1 is usually defined as heart rate that declines to ≤ 12 beats/min in the first minute after exercise for protocols that use a post-exercise cool-down or ≤ 18 beats/min in the first minute post exercise for protocols that abruptly stop exercise (2, 4). Because the authors used post-exercise cool-down protocol, HRR1 ≤ 12 beats/min might be assumed to be abnormal in this case. HRR1 was 34.8 ± 1.2 in patients with erectile dysfunction in the authors' study. Thus, one should be very careful in interpreting their results. Approximately 95% of HRR1 was, statistically, between 12.4 and 57.2 beats/min in patients with erectile dysfunction. Therefore, we can assume that virtually all patients with erectile dysfunction had a normal HRR1. Hence, it might be misleading to suggest that patients with erectile dysfunction have impairment in autonomic nervous system. Looking carefully at the data, maximal heart rate was 158.2 ± 18.7 beats/min in patients with erectile dysfunction and 167.2 ± 16 beats/min in controls. Accordingly, most of the differences between patients with erectile dysfunction and controls with regard to HRR indices were due to lower heart rate attained at peak exercise in patients with erectile dysfunction. Namely, chronotropic incompetence, which might be due poor physical fitness, could be responsible for differences in HRR in this study population as demonstrated before (5). I believe that caregivers should be familiar with parameters gleaned from a standard exercise test and interpreting the results gained from it.

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References

1. Ulucan Ş, Kaya Z, Keser A, Katlandur H, Karanfil M, Ateş İ. Deterioration of heart rate recovery index in patients with erectile dysfunction. *Anatol J Cardiol* 2016; 16: 264-9.
2. Cole CR, Blackstone EH, Pashkow F, Snader CE, Lauer MS. Heart-rate recovery immediately after exercise as a predictor of mortality. *N Engl J Med* 1999; 341: 1351-7.
3. Maddox TM, Ross C, Ho PM, Masoudi FA, Magid D, Daugherty SL, et al. The prognostic importance of abnormal heart rate recovery and chronotropic response among exercise treadmill test patients. *Am Heart J* 2008; 156: 736-44.
4. Lauer MS, Mehta R, Pashkow FJ, Okin PM, Lee K, Marwick TH. Association of chronotropic incompetence with echocardiographic ischemia and prognosis. *J Am Coll Cardiol* 1998;32:1280-6.
5. Desai MY, De la Peña-Almaguer E, Mannting F. Abnormal heart rate recovery after exercise as a reflection of an abnormal chronotropic response. *Am J Cardiol* 2001; 87: 1164-9.

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