

## 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.

**Address for Correspondence:** Dr. Abdullah Tekin  
Başkent Üniversitesi Tıp Fakültesi  
Kardiyoloji Anabilim Dalı, Yüreğir, Adana-Türkiye  
Phone: +90 322 327 27 27 Fax: +90 322 327 12 86  
E-mail: tekincardio@yahoo.com



©Copyright 2016 by Turkish Society of Cardiology - Available online  
at [www.anatoljcardiol.com](http://www.anatoljcardiol.com)  
DOI:10.14744/AnatolJCardiol.2016.7231

## Author's Reply

To the Editor,

We read the letter about our article entitled "Deterioration of heart rate recovery index in patients with erectile dysfunction" published in the April issue of *Anatolian Journal of Cardiology* 2016; 16: 264-9 (1). The authors evaluated only the HRR1 parameter and stated "It would be too generous to claim that patients with erectile dysfunction (ED) have impairment in autonomic nervous system (ANS)."

First, we analyzed all heart rate recovery (HRR) indices (HRR1, HRR2, HRR3, and HRR5) and not only HRR1 to determine the ANS dysfunction in ED patients. In our study, we found significant differences in all parameters between control and patient groups. Although the author's comment about HRR1 is acceptable, other HRR indices, especially HRR2, had an abnormal range in ED patients, whereas it had a normal range in the healthy group. Furthermore, we found that HRR1 and HRR3 were independent risk factors for ED in linear multivariate regression analysis.

When all these results are evaluated together, the significant differences in HRR indices between the two groups are thought to be associated with both low exercise capacity and ANS dysfunction in ED patients.

**Zeynettin Kaya**  
Department of Cardiology, Faculty of Medicine, Mevlana University;  
Konya-Turkey

## Reference

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.

**Address for Correspondence:** Dr. Zeynettin Kaya  
Mevlana Üniversitesi Tıp Fakültesi, Kardiyoloji Bölümü  
Yeni İstanbul Cad. No: 235  
42003 Selçuklu/Konya-Türkiye  
E-mail: zeynetinkaya@yahoo.com

## Heart rate recovery, cardiac rehabilitation, and erectile dysfunction in males with ischemic heart disease

To the Editor,

I have read the article entitled "Heart rate recovery, cardiac rehabilitation, and erectile dysfunction in males with ischemic heart disease" by Kałka et al. (1) with great interest, which was recently published in *Anatolian Journal of Cardiology* 2016; 16: 256-63. The investigators reported that in patients with ischemic heart disease (IHD) and erectile dysfunction (ED) subjected to cardiac rehabilitation, enhancement of autonomic balance assessed using heart rate recovery (HRR) plays a significant role in the mechanism of improvement in erection quality (1). Authors have reported that there was no significant difference with regard to beta-blocker therapy (1).

Beta-blockers are one of the most commonly used and cornerstone therapy in the treatment of ischemic heart disease (2). Nebivolol is a third-generation beta-blocker, and has a vasodilating effect that is attributed to the generation of endothelial nitric oxide, in addition to  $\beta_1$ -adrenoceptor selectivity (3).

It is well known that beta-blocker therapy effect might be different with regard to ED depending on sort of it in patients with IHD (4). Aldemir et al. (4) have reported that although ED in males undergoing CABG surgery decreases when metoprolol is used, nebivolol had a protective effect on the sexual activity of men undergoing coronary artery bypass surgery with cardiopulmonary bypass. In addition, Brixius et al. (5) have reported beneficial effects of nebivolol on the erectile function in hypertensive men.

I would like to emphasize one important point to clarify in this article. Kind of beta-blocker therapy is very important to evaluate ED in patients with IHD (3-5). Therefore, authors should mention kind of beta-blocker therapy used in this study group.

In conclusion, ED is more common in men with IHD. Nebivolol, a third-generation beta-blocker, seems to have beneficial effects on ED compared with metoprolol (3-5). Kind of beta-blocker therapy might affect ED in patients with IHD.

**Levent Cerit****Department of Cardiology, Near East University; Nicosia-Turkish Republic of Northern Cyprus****References**

1. Kałka D, Domagała Z, Rusiecki L, Karpiński Ł, Gebala J, Kołęda P, et al. Heart rate recovery, cardiac rehabilitation and erectile dysfunction in males with ischaemic heart disease. *Anatol J Cardiol* 2016; 16: 256-63
2. Ryan TJ, Antman EM, Brooks NH, Califf RM, Hillis LD, Hiratzka LF, et al. 1999 update: ACC/AHA guidelines for the management of patients with acute myocardial infarction. A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on Management of Acute Myocardial Infarction). *J Am Coll Cardiol* 1999; 34: 890-911.
3. Van de Water A, Janssens W, Van Neuten J, Xhonneux R, De Cree J, Verhaegen H, et al. Pharmacological and hemodynamic profile of nebivolol, a chemically novel, potent, and selective beta 1-adrenergic antagonist. *J Cardiovasc Pharmacol* 1988; 11: 552-63.
4. Aldemir M, Keleş İ, Karalar M, Tecer E, Adalı F, Pektaş MB, et al. Nebivolol compared with metoprolol for erectile function in males undergoing coronary artery bypass graft. *Anatol J Cardiol* 2016; 16: 131-6.
5. Brixius K, Middeke M, Lichtenthal A, Jahn E, Schwinger RH. Nitric oxide, erectile dysfunction and beta-blocker treatment (MR NOED study): benefit of nebivolol versus metoprolol in hypertensive men. *Clin Exp Pharmacol Physiol* 2007; 34: 327-31.

**Address for Correspondence:** Dr. Levent Cerit  
Near East Hospital University Hospital  
Nicosia- Turkish Republic of Northern Cyprus  
Phone: +90 392 675 10 00 E-mail: drcerit@hotmail.com



©Copyright 2016 by Turkish Society of Cardiology - Available online at [www.anatoljcardiol.com](http://www.anatoljcardiol.com)

DOI:10.14744/AnatolJCardiol.2016.7229

**Author's Reply**

To the Editor,

We thank the author(s) for their constructive comments on our study entitled "Heart rate recovery, cardiac rehabilitation, and erectile dysfunction in males with ischemic heart disease" published in the *Anatolian Journal of Cardiology* 2016; 16: 256-63 (1). In our study, we aimed to assess the relationship between heart rate recovery and the severity of erectile dysfunction (ED) in patients with ischemic heart disease and ED who have undergone cardiac rehabilitation. In addition, we assessed the impact of pharmacotherapy on the severity of ED among others. We are glad to learn that pharmacotherapy of ED and concomitant diseases are interesting because this can improve the overall quality of life in patients with many coexisting disorders.

Indeed nebivolol has unique properties when compared with previous generation beta-blockers. Nebivolol is approximately 3.5 times more cardio selective than bisoprolol, which reduces the risk of side effects typical for other beta-blockers (2). An-

other advantage of nebivolol is its vasodilator effect due to the increase of endogenous nitric oxide release by the endothelial cells, which leads us to hypothesize about the potentially antiatherogenic effect of this drug and creates the premise that nebivolol could also be beneficial in patients with ischemic heart disease (3); however, at present, it is not approved for the treatment of ischemic heart disease without coexisting arterial hypertension or heart failure (4).

In the erection mechanisms, endothelium-dependent relaxation of the penile arteries is crucial because rapid increase of their capacity up to 80% allows for bringing sufficient volume of blood to initiate the corporal veno-occlusive mechanism and maintain erection (5). The unique effect of nebivolol on the endothelium improves vessel relaxation, and in contrast to other beta-adrenergic blocking agents, nebivolol does not impair sexual function. In males with hypertension and coronary artery disease invasively treated, nebivolol had a protective effect on sexual function (2, 6).

In our study, beta-blockers were taken by 84 (94.38%) patients. Their use had no significant influence on the initial IIEF-5 (EQ1) score, as well as their change ( $\Delta$  EQ) caused by cardiac training (1). We agree that the comparison of nebivolol with other beta-blockers could bring additional information, but the small percentage of patients on nebivolol vs. bisoprolol, metoprolol, and carvedilol would not guarantee reliable results. At the time of the study, patients used to choose other drugs because of economic reasons. This situation has changed as the introduction of generics improved the availability of nebivolol for more male patients than before and allowed them to benefit from the unique properties of this drug in terms of sexual function.

**Dariusz Kałka<sup>1,2</sup>****<sup>1</sup>Cardiosexology Unit, Department of Pathophysiology, Wrocław Medical University; ul. K. Marcinkowskiego 1; Wrocław-Poland****<sup>2</sup>Centre for Men's Health in Wrocław-Poland****References**

1. Kalka D, Domagała Z, Rusiecki L, Karpinski L, Gebala J, Kołęda P, et al. Heart rate recovery, cardiac rehabilitation and erectile dysfunction in males with ischaemic heart disease. *Anatol J Cardiol* 2016; 16: 256-63
2. Brixius K, Middeke M, Lichtenthal A, Jahn E, Schwinger RH. Nitric oxide, erectile dysfunction and beta-blocker treatment (MR NOED study): benefit of nebivolol versus metoprolol in hypertensive men. *Clin Exp Pharmacol Physiol* 2007; 34: 327-31.
3. Van de Water A, Janssens W, Van NJ, Xhonneux R, De CJ, Verhaegen H, Reneman RS, et al. Pharmacological and hemodynamic profile of nebivolol, a chemically novel, potent, and selective beta 1-adrenergic antagonist. *J Cardiovasc Pharmacol* 1988; 11: 552-63.
4. Munzel T, Gori T. Nebivolol: the somewhat-different beta-adrenergic receptor blocker. *J Am Coll Cardiol* 2009; 54: 1491-9.
5. Kaiser DR, Billups K, Mason C, Wetterling R, Lundberg JL, Bank AJ. Impaired brachial artery endothelium-dependent and -independent vasodilation in men with erectile dysfunction and no other clinical cardiovascular disease. *J Am Coll Cardiol* 2004; 43: 179-84.