International Journal of Cardiology 235 (2017) 192–193

Contents lists available at ScienceDirect

International Journal of Cardiology

journal homepage: www.elsevier.com/locate/ijcard

Correspondence

Reply to "Circadian variation in acute myocardial infarction size: Likely involvement of the melatonin and suprachiasmatic nuclei"

Heerajnarain Bulluck [a,b,i], Jennifer Nicholas [c], Gabriele Crimi [e], Steven K White [a], Andrew J Ludman [d], Silvia Pica [f], Claudia Raineri [e], Hector A Cabrera-Fuentes [h,i,j], Derek M Yellon [a], Jose Rodriguez-Palomares [g], David Garcia-Dorado [g], Derek J Hausenloy [a,b,i,j,k,l,*]

[a] The Hatter Cardiovascular Institute, Institute of Cardiovascular Science, University College London, UK
[b] The National Institute of Health Research University College London Hospitals Biomedical Research Centre, UK
[c] London School of Hygiene and Tropical Medicine, London, UK
[d] Royal Devon and Exeter Hospital NHS Foundation Trust, Exeter, UK
[e] Struttura Complessa Cardiologia, Fondazione Istituto Di Ricovero e Cura a Carattere Scientifico (IRCCS) Policlinico San Matteo, Pavia, Italy
[f] Multimodality Cardiac Imaging Section, IRCCS Policlinico San Donato, Milan, Italy
[g] Cardiology Department, Vall d'Hebron Hospital, Universitat Autónoma de Barcelona, Barcelona, Spain
[h] Institute of Biochemistry, Medical School, Justus-Liebig-University, Giessen, Germany
[i] National Heart Research Institute Singapore, National Heart Centre, Singapore
[j] Cardiovascular and Metabolic Disorders Program, Duke-National University of Singapore, Singapore
[k] Barts Heart Centre, St Bartholomew's Hospital, London, UK
[l] Yong Loo Lin School of Medicine, National University Singapore, Singapore

ARTICLE INFO

Article history:
Received 15 February 2017
Accepted 23 February 2017

We read with great interest the letter by Dominguez-Rodriguez, Abreu-Gonzalez and Reiter regarding our article [1]. We thank the authors for pointing out that although the circadian "clock" genes are expressed by most tissues, the suprachiasmatic nuclei of the hypothalamus are predominantly responsible for their secretion and regulation in mammals and they also influence the expression of melatonin. Melatonin has numerous benefits as described in their letter but it is secreted in a circadian pattern. This may partly explain our findings of a circadian variation of myocardial infarction size, depending on the time of onset of symptoms. We admire their enthusiasm to champion melatonin as a promising cardioprotective agent against ischemia–reperfusion injury in the setting of ST-segment elevation myocardial infarction (STEMI) [2]. Although the MARIA trial [2] was neutral for infarct size reduction, a post-hoc analysis found that those presenting within 2.5 h of symptom onset showed a significant reduction in myocardial infarct size [3]. This highlights the fact that careful patient selection is crucial for optimizing the translation of promising cardioprotective therapies in the clinical setting [4]. Furthermore, around 50% of STEMI patients treated by primary percutaneous coronary intervention develop microvascular obstruction [5] and therefore any cardioprotective therapy, even if administered via the intra-coronary route, would fail to reach the microcirculation in half of these patients [6]. An alternative approach, which has not yet been studied so far, may be to combine low dose thrombolysis (to regain flow in the microcirculation as currently being investigated in the T-TIME trial — NCT02257294) with a promising cardioprotective therapy (to reach the ischemic myocytes and protect against lethal myocardial injury), in order to minimize reperfusion injury and improve outcomes in these patients [6].

Conflicts of interest

The authors report no relationships that could be construed as a conflict of interest.

Acknowledgements

Part of this work was supported by the British Heart Foundation (FS/10/039/28270), the Rosetrees Trust, and the National Institute for Health Research University College London Hospitals Biomedical Research Centre. HACF is funded by a Startup Grant of the "Excellence Cluster Cardio-Pulmonary System" (ECCPS) from the German Research Foundation (DFG, Bonn, Germany) and the "Peter und Traudl Engelhorn-Stiftung" (Weilheim, Germany).

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* Corresponding author at: Cardiovascular & Metabolic Diseases Program, Duke-NUS Graduate Medical School Singapore, 8 College Road, 169857, Singapore.
E-mail address: derek.hausenloy@duke-nus.edu.sg (D.J. Hausenloy).

http://dx.doi.org/10.1016/j.ijcard.2017.02.112
0167-5273/

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