Last Word on Viewpoint: Effect of altitude on leptin levels, does it go up or down?

Justo Sierra-Johnson,1,2 Abel Romero-Corral,1 Virend K. Somers,1 and Bruce D. Johnson1

1Division of Cardiovascular Diseases, Department of Internal Medicine, Mayo Clinic, Rochester, Minnesota; and 2Atherosclerosis Research Unit, Department of Medicine, Karolinska Institutet, Stockholm, Sweden

TO THE EDITOR: We thank all the reviewers for taking the time to read and comment on the complex relationship between leptin and altitude. The comments and discussion were excellent. The Viewpoint we put forward referred to studies that reported both “increased or unchanged” leptin or “decreased” leptin levels and thus was meant to provide an impartial view that acknowledges the complexities in leptin regulation particularly as it applies to hypoxia (2). These comments have stemmed from our own findings of variable changes in leptin in healthy humans exposed to normobaric or hyobaric hypoxia and actually liberalizes our original position on the role of altitude on leptin regulation in humans (3). The comments provided by the other authors on this Viewpoint (1) generally support this complex regulation at altitude. In particular, the study by Guerre-Millo of exposed leptin receptor-deficient (Leprfa/Leprfa) obese rats to low barometric pressure in hypobaric chambers could help to define the complex counter-regulatory factors or pathways, which preclude the hypoxic stimulation of the leptin gene (4). Jianping Ye (1) cites evidence that the leptin gene may not be hypoxia sensitive as previously thought (4). Finally, the comments by Cabrera de Leon (1) suggest our Viewpoint was biased toward altitude increasing leptin levels, however this was not the intent. Overall, we are delighted with the discussion and the attention that this Viewpoint raised and hope this helps stimulate additional mechanistic research in this area.

REFERENCES


