Response to Letter by Lee Regarding Article, “Multi-Analyte Profiling Reveals Matrix Metalloproteinase-9 and Monocyte Chemotactic Protein-1 as Plasma Biomarkers of Cardiac Aging”

In the August 2011 issue of Circulation: Cardiovascular Genetics, we reported our findings on plasma biomarkers of cardiac aging phenotypes.1 We thank Dr Lee for the questions regarding the plasma collection procedure used in our study.

Different anticoagulants (eg, EDTA, heparin, and citrate) are available and used in blood sampling. Every anticoagulant has its own advantages and disadvantages. Heparin has been shown to increase matrix metalloproteinase (MMP)-9 levels when added to the heparinized plasma after blood collection (postanalytical phase).2 Adding heparin in the tube for blood collection (preanalytical) reduces the release of MMP-9 from platelet and leukocytes, and results in a lower concentration of MMP-9 compared with serum but similar levels compared with those found using EDTA and citrate as anticoagulants.2,3

Our study was a blinded study to screen for potential plasma biomarkers of 69 analytes and was not a targeted study for MMP-9 plasma levels. We used heparin because an injectable anticoagulant is preferred in our study to prevent blood clotting during the tissue collection procedure. Because heparin was injected before blood collection, there should be no postanalytical MMP-9 increase.

For the plasma separation procedure, 2100g was used for the centrifugation speed. This speed is comparable to most of the widely used plasma collection protocols and is higher than the 150g speed used to prepare platelet-rich plasma.4

The most important point is that all samples in the study were handled under the exact same conditions (anticoagulant and centrifugation); thus, the changes observed were not attributed by prior postanalytical determinants. We appreciate the comments raised by Dr Lee that help to clarify the issues.

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Disclosures

None.

Ying Ann Chiao, MPhil
Qiuxia Dai, MD
Jianhua Zhang, MD, PhD
Jing Lin, MD
Elizabeth F. Lopez
Seema S. Ahuja, MD
Youn-Min Chou, PhD
Merry L. Lindsey, PhD
Yu-Fang Jin, PhD

Division of Geriatrics, Gerontology and Palliative Medicine
Department of Medicine
The University of Texas Health Science Center at San Antonio
San Antonio, TX

References

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Ying Ann Chiao, Qiuxia Dai, Jianhua Zhang, Jing Lin, Elizabeth F. Lopez, Seema S. Ahuja, Youn-Min Chou, Merry L. Lindsey and Yu-Fang Jin

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