International Journal of Cardiology 281 (2019) 157

Contents lists available at ScienceDirect

International Journal of Cardiology

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

Letter to the Editor

Authors' reply to Preoperative CT scan for Postoperative Stroke Prediction in Minimally Invasive Mitral Valve Surgery: Statistical Concern for Clinical Factors in Regression analyses

Jeremy R. Leonard, Antonino Di Franco, Mario Gaudino *

Department of Cardiothoracic Surgery, Weill Cornell Medicine, New York City, NY, USA

ARTICLE INFO

Article history:
Received 16 January 2019
Accepted 23 January 2019

Keywords:
Minimally invasive mitral valve surgery
Stroke
Computed tomography

The letter by Lou et al. is based on a misinterpretation of our paper.

In the primary analysis statistical heterogeneity was only moderate ($I^2 = 40\%$), so the use of statistical techniques to explore heterogeneity (subgroup analysis or metaregression) is not formally needed.

However, the aim of the paper was to evaluate if a specific variable (use of systematic preoperative CT scan) was associated with a reduction in the risk of stroke. Clearly, the use of CT per se has no effect on the biological mechanism of postoperative stroke. Instead the use of CT enables the selection of a patients' population with a preoperative profile that make the use of minimally invasive mitral surgery safer. It is expected that this patients' population have a different baseline risk profile compared to that where preoperative CT screening is not performed, so exploration of the risk factors for stroke is of no interest for the purpose of the analysis.

In view of these considerations, the use of multivariate meta-regression would be of no benefit to the analysis and may risk instead of increasing the chances of spurious associations. The most important analysis is subgroup analysis where the results of patients operated with and without preoperative CT are compared and this was highly statistically significant.

As a final note, even in the case where statistical heterogeneity is high (not the case of the referenced paper) the use of multivariate vs univariate analysis is highly controversial and the advantages of the former have not been demonstrated.

Funding

None.

Disclosures

None.

Acknowledgements

None.

* Corresponding author at: Department of Cardiothoracic Surgery, Weill Cornell Medicine, 525 E 68th St, New York, NY 10065, USA.
E-mail address: mfg9004@med.cornell.edu (M. Gaudino).

https://doi.org/10.1016/j.ijcard.2019.01.086