

article mentions that data provided by the Spanish National Health System are not based on “robust and publicly available risk-adjusted outcome indicators supported by consensus between scientific societies and health care authorities.”¹ Among the total number of patients who underwent CABG, 15.9% were excluded, mainly those with a principal diagnosis of acute myocardial infarction. Non-Q wave acute myocardial infarction is one of the most common indications for surgery in our centers, and specifically, for CABG alone. Only 64.3% of patients included exclusively underwent CABG, and the additional cardiac procedures were not specified in the remainder. One must be extremely rigorous in drawing conclusions regarding the outcome of CABG by including only patients treated with this procedure alone, to avoid committing serious selection bias with an alarming impact on the results. For these reasons, caution is required when interpreting the conclusions of this article.

Clustering CABG procedures is not the solution to the low volume of coronary surgeries per center in our country. In many Spanish centers⁴ there has been a disproportionate indication for PCI in patients with left main coronary artery or multivessel disease. The mean number of coronary surgeries in Europe is 380/million population, whereas in Spain it is 108/million; the PCI:CABG ratio is 6:1 in Europe and 2:1 in the United Kingdom and the United States, whereas it is 14:1 in Spain.⁵ Obviously, as PCI use has grown, the number of CABG performed has decreased. Although PCI provides good immediate outcomes in this context, the current scientific evidence suffices to ensure that it is associated with higher mortality and major adverse events than CABG, particularly at mid and long term.⁶

Lastly, we completely agree that there is a need to publish outcomes, not only of CABG, but also of PCI, and at both short- and long-term. This is especially important in the local setting of each center. Only when the outcomes of both these treatments are known will cardiology teams be able to select the most appropriate individualized treatment for each patient.

We congratulate the authors for carrying out a study that aims to optimize excellence in the treatment of multivessel disease.

Javier Gualis Cardona,* Elio Martín Gutiérrez,
and Mario Castaño Ruiz

Servicio de Cirugía Cardíaca, Complejo Asistencial Universitario de León, León, Spain

*Corresponding author:

E-mail address: javgua@hotmail.com (J. Gualis Cardona).

Available online 17 March 2020

REFERENCES

- Goicolea Ruigómez FJ, Elola FJ, Durante-López A, Fernández Pérez C, Bernal JL, Macaya C. Coronary artery bypass grafting in Spain Influence of procedural volume on outcomes. *Rev Esp Cardiol.* 2020;73:488–494.
- McGrath PD, Wennberg DE, Dickens Jr JD et al. Relation between operator and hospital volume and outcomes following percutaneous coronary interventions in the era of the coronary stent. *JAMA.* 2000;284:3139–3144.
- Mack MJ, Herbert M, Prince S, Dewey TM, Magee MJ, Edgerton JR. Does reporting of coronary artery bypass grafting from administrative databases accurately reflect actual clinical outcomes? *J Thorac Cardiovasc Surg.* 2005;129:1309–1317.
- Lozano I, Vegas JM, Rondan J, Segovia E. Factors contributing to the low rate of surgical revascularization in Spain. *Rev Esp Cardiol.* 2015;68:911.
- Cuerpo-Caballero G, Muñoz C, Carnero M, López-Menéndez J. En respuesta al Documento de Posicionamiento de la Sociedad Española de Cardiología titulado: “Intervencionismo percutáneo cardiológico y cirugía cardíaca: el paciente en el centro de los procesos”. *Cir Cardiov.* 2019;26:179–182.
- Neumann FJ, Sousa-Uva M, Ahlsson. et al. 2018 ESC/EACTS Guidelines on myocardial revascularization. *Eur Heart J.* 2019;40:87–165.

<https://doi.org/10.1016/j.rec.2019.12.013>
1885-5857/

© 2020 Sociedad Española de Cardiología. Published by Elsevier España, S.L.U. All rights reserved.

Administrative data and volume of surgical revascularization volume. A note of caution. Response



Utilización de datos administrativos y el volumen de cirugía coronaria. Una nota de precaución. Respuesta

To the Editor,

We appreciate the interest shown in our article¹ by Gualis Cardona et al., and we agree that the outcomes of coronary intervention should be public and transparent. While we agree on this principle, we would also like to discuss some of the methodological points raised by Gualis Cardona et al.

- Our study did not analyze the existence of a proportional a relationship between the volume of interventions and outcomes. We found a marked dispersion and an association between volume and outcomes (risk-adjusted in-hospital mortality and readmissions) when we compared hospitals by volume (“high-volume” vs “low-volume”).
- The differences in the crude mortality rate in isolated coronary artery bypass grafting (CABG) between our study and the

administrative register (3% vs 2.8%) do not appear to be relevant, as there are differences in the patient selection and not all hospitals are included in the Spanish Society of Cardiothoracic Surgery register.

- Unlike the reference cited by Gualis Cardona et al.,² more recent articles show the validity of administrative databases for predicting mortality risk in CABG.³ However, the validity of using the National Minimum Dataset for predicting outcomes in CABG must be studied, as has been done for acute coronary syndrome.⁴
- As described in our article, we excluded CABG procedures performed during an episode of acute myocardial infarction, to select, as far as possible, for elective surgery.
- Our study listed the cardiac surgical procedures associated with non-isolated CABG: 35.*; 37.32-4;37.5*; 37.60; 37.63-68 and 37.90.

Concentrating CABG programs may help us reach the minimum volumes established by the international scientific societies (references 5 and 6 in our original article). The risk-adjusted outcomes should be a guide for both planning the health care resources required and choosing the most appropriate procedure in each patient. Analyzing the causes of apparently suboptimal outcome markers of health (for coronary intervention or any other healthcare activity) in different hospitals is an ethical obligation for all those involved in health care.

FUNDING

Fundación Interhospitalaria de Investigación Cardiovascular (FIC), Spain. FIC 1/19.

Francisco J. Elola,^{a,*} Cristina Fernández Pérez,^{a,b} José L. Bernal,^{a,c} and F. Javier Goicolea Ruigómez^d

^aFundación IMAS, Madrid, Spain

^bServicio de Medicina Preventiva, Instituto de Investigación Sanitaria San Carlos, Universidad Complutense de Madrid, Madrid, Spain

^cServicio de Control de Gestión, Hospital Universitario 12 de Octubre, Madrid, Spain

^dServicio de Cardiología, Hospital Universitario Puerta de Hierro-Majadahonda, Majadahonda, Madrid, Spain

* Corresponding author:

E-mail address: fjelola@movistar.es (F.J. Elola).

Available online 4 May 2020

REFERENCES

1. Goicolea Ruigómez FJ, Elola FJ, Durante-López A, Fernández Pérez C, Bernal JL, Macaya C. Coronary artery bypass grafting in Spain Influence of procedural volume on outcomes. *Rev Esp Cardiol.* 2020;73:488–494.
2. Mack MJ, Herbert M, Prince S, Dewey TM, Magee MJ, Edgerton JR. Does reporting of coronary artery bypass grafting from administrative databases accurately reflect actual clinical outcomes? *J Thorac Cardiovasc Surg.* 2005;129:1309–1317.
3. Aktuerk D, McNulty D, Ray D, et al. National administrative data produces an accurate and stable risk prediction model for short-term and 1-year mortality following cardiac surgery. *Int J Cardiol.* 2016;203:196–203.
4. Bernal JL, Barrabés JA, Iñiguez A, et al. Clinical and administrative data on the research of acute coronary syndrome in Spain: minimum basic data set validity. *Rev Esp Cardiol.* 2018;72:56–62.

<https://doi.org/10.1016/j.rec.2020.01.020>
1885-5857/

© 2020 Sociedad Española de Cardiología. Published by Elsevier España, S.L.U. All rights reserved.