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Available online 7 April 2019

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https://doi.org/10.1016/j.rec.2019.01.012
1885-5857/

Definition of Myocardial Infarction Type 4a: Can We Define Its Diagnosis and Systematize Clinical Practice? Response

Definición de infarto tipo 4a: ¿podemos definir mejor su diagnóstico y sistematizar la práctica clínica? Respuesta

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Available online 20 May 2019

To the Editor,

We thank Lozano et al. for their interest in our article.[1]

It is true that scientific societies differ in the criteria they use to define myocardial infarction (MI). Type 4a MI is that occurring after percutaneous coronary intervention and is defined by the European Society of Cardiology as an elevation in high-sensitivity cardiac troponin (hs-cTn) $\geq$ 5 times the 99th percentile upper reference limit (URL) if this is accompanied by electrocardiogram changes, the appearance of new Q waves, and imaging or angiographic evidence of myocardial ischemia.[1] In contrast, the Society for Cardiovascular Angiography and Interventions (SCAI) defines "clinically relevant" postrevascularization MI as an hs-cTn increase $\geq$ 70 times the 99th percentile URL in the presence of new pathological Q waves or new persistent left bundle branch block.[2] These divergent definitions are based on different scientific evidence. The European Society of Cardiology definition of type 4a MI is based on optimal hs-cTn thresholds that have been validated for the prediction of cardiovascular events in recent studies.[3] The SCAI definition is based on the assumption that the optimal biomarker for defining clinically relevant MI after percutaneous coronary intervention is the serum creatine kinase MB fraction (CK-MB)[3]; the proposed hs-cTn threshold of $\geq$ 70 times the 99th percentile URL is calculated from the 7:1 ratio between troponin and CK-MB and was shown in a previous study to be a reliable proxy for elevated CK-MB.[4]

Clinical practice guideline recommendations should be the servants, not the masters, of clinical judgment. Adherence to this guiding principal will help us to improve the quality of care for our patients and balance the costs and benefits of the techniques used.

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https://doi.org/10.1016/j.rec.2019.02.020
1885-5857/

Validity of the Minimum Basic Data Set for Research Into Outcomes of the Care of Acute Coronary Syndrome

Validez del Conjunto Mínimo Básico de Datos para la investigación de resultados en la atención al síndrome coronario agudo

To the Editor,

We have read with interest the article by Bernal et al.[1] published in *Revista Española de Cardiología* and would like to make several comments.

First, we would like to congratulate the authors on their study and on the research topic chosen. In the era of big data, new opportunities to use large databases have greatly enhanced prospects for research into health care outcomes. The study by Bernal et al. is a clear example of the usefulness of the minimum

basic data set (MBDS) for research into care outcomes for acute coronary syndrome and the possibility of linking MBDS information with data from other disease-specific clinical registries for this condition, such as the DIOCLES (*Descripción de la Cardiopatía Isquémica en el Territorio Español* [Description of Ischemic Heart Disease in the Spanish Territory]) registry.

The authors point out that the main limitation of their study was the percentage of matches between the 2 registries that could not be resolved. According to the authors, the linkage procedure applied in DIOCLES was adversely affected by using the variable of age, rather than date of birth, as well as quality issues related to admission and discharge dates. Quality issues can also arise with coding of the principal diagnosis at discharge in the MBDS. For instance, a study was conducted at the 9 general hospitals in the Health Service of Murcia, using an MBDS for the first half of 2012 and the second half of 2013 based on a principal diagnosis at discharge of ST-segment elevation acute coronary syndrome (STE-ACS) (International Classification of Diseases, ninth revision [ICD-9] code 410.X1, except 410.71). In that study, 29.1% of 898 cases initially coded as STE-ACS were actually found to be inaccurate during a review of the events by expert cardiologists. Ultimately, non–ST-elevation acute coronary syndrome [NSTE-ACS] was diagnosed in 87.7% of the cases excluded and other conditions in the rest.[2]

Because STE-ACS and NSTE-ACS differ in terms of therapeutic approach, mortality, complications, and rehospitalization rates, this quality issue could cause problems when the MBDS database is used to analyze care outcomes in STE-ACS.

Furthermore, this issue may have been recently heightened by the switch from ICD-9 to ICD-10 for clinical data coding. Another study performed in a regional health service concluded that the information it collected in 2017 in an MBDS using ICD-10 codes may be useful for understanding certain general aspects related to health care and service quality, in comparison with previous years. However, it would not be useful for analyzing trends regarding frequency of patient consultations, monitoring of the management of specific medical conditions, or identifying cases for research projects.[3]

Quality issues have always been a problem with MBDS[4] and should be considered when this kind of information system is used in clinical research.

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Available online 1 June 2019

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https://doi.org/10.1016/j.rec.2019.03.012
1885-5857/

Validity of the Minimum Basic Data Set for Research Into Outcomes of the Care of Acute Coronary Syndrome. Response

Validez del Conjunto Mínimo Básico de Datos para la investigación de resultados en la atención al síndrome coronario agudo. Respuesta

To the Editor,

We appreciate the kind interest shown by Calle-Urra et al. in our article on the validity of the minimum basic data set (MBDS) for research into outcomes in the care of acute coronary syndrome.[1] The authors wished to highlight the problems in the coding quality of the MBDS, which they considered important among the limitations of our study. However, as our objective was to evaluate the concordance between a clinical registry (DIOCLES) and the MBDS, the coding quality was, in our opinion, a study variable whose result should not be viewed as a limitation at all.

The study published on the Murcia Health Service website,[2] which formed the basis for their doubts about the quality of the MBDS had a different objective to ours; it lightly touched on the coding quality, and it did so differentiating the diagnoses of ST-elevation acute myocardial infarction and non–ST-elevation acute myocardial infarction—something which we did not analyze. The Murcia Health Service study used as its study sample 897 registered episodes that took place in 9 hospitals in Murcia over 2 nonconsecutive 6-month periods in 2012 and 2013, and the authors reported that they considered it unnecessary to obtain confidence intervals, meaning that the scope of their method is merely descriptive and therefore does not allow any inference from their results. Nonetheless, although they did not distinguish between non–ST-elevation acute myocardial infarction and unstable angina, it would seem that they found a high degree of concordance in the coding for acute myocardial infarction (a variable that we did include in our study), as they reported discrepancies in only 3.6% of the clinical records reviewed. Regardless, as we reflect on the conclusions of our study, we concur that there would seem to be room for improvement in the coding quality of the MBDS, but we believe that this can only be established using scientific methods subject to peer-review; this should also be the case for assessing the impact of the updated version of the International Classification of Diseases that the MBDS started to use in 2016.