

Editorial

Comments on the ESC Guidelines for the Management of Acute Coronary Syndromes in Patients Presenting Without Persistent ST-Segment Elevation. A Report of the Task Force of the Clinical Practice Guidelines Committee of the Spanish Society of Cardiology

Comentarios a la guía de práctica clínica de la ESC para el manejo del síndrome coronario agudo en pacientes sin elevación persistente del segmento ST. Un informe del Grupo de Trabajo del Comité de Guías de Práctica Clínica de la Sociedad Española de Cardiología

ESC Task Force for the ESC 2011 NSTEMI-ACS Guidelines: Antonio Fernández-Ortiz, * Manuel Pan (coordinators), Fernando Alfonso, Fernando Arós, José A. Barrabés, Vicente Bodí, Ángel Cequier, Xavier García-Moll, Javier Jiménez-Candil, Ramón López-Palop, Carlos Peña, and Fernando Worner

ESC Committee for Practice Guidelines: Ángel M. Alonso Gómez, Manuel Anguita, Ángel Cequier, Josep Comín, Antonio Fernández-Ortiz, Manuel Pan, and Fernando Worner

Document reviewers: Joaquín Alonso, Alfredo Bardají, Gonzalo Barón-Esquivias, Ramón Bover, Juan Ángel-Ferrer, Javier Goicolea, Juan J. Gómez-Doblas, Andrés Iñiguez, Vicente Mainar, Francisco Marín, Milagros Pedreira, Inmaculada Roldán, Manel Sabaté, Pedro L. Sánchez, and Juan Sanchis

Article history:

Available online 16 January 2012

The new guidelines for the management of acute coronary syndrome in patients without persistent ST-elevation (NSTEMI-ACS),¹ prepared in 2011 by the European Society of Cardiology (ESC), have been accepted by the Spanish Society of Cardiology (SEC) and translated to Spanish for publication in their entirety in the *Revista Española de Cardiología*.² As a support tool for the implementation of these guidelines, and in accordance with the new SEC policy for clinical practice guidelines,³ this editorial discusses the innovations and new recommendations in these guidelines and evaluates some aspects considered to be controversial, so as to facilitate the implementation of the new guidelines in our field.

METHODS

The SEC Committee for Practice Guidelines formed a task force composed of expert cardiologists proposed by the SEC sections on Ischemic Cardiopathy and Coronary Care, Hemodynamics, and Clinical Cardiology, with the objective of commenting on the recommendations and evidence provided by the new guidelines for the management of NSTEMI-ACS. All members of the task force were asked to provide an analysis based on the following points: *a)* the nature and timing of the guidelines; *b)* the methodology of the guidelines; *c)* novel and

important developments for clinical practice; *d)* positive and/or questionable aspects and a comparison with other guidelines on this topic; *e)* points that require further discussion, and *f)* conclusions and implications for clinical practice in our field of medicine. With these comments, we put together a consensus document that, after being approved by the group, was sent for review to 15 renowned experts also selected by the relevant scientific sections, and their comments were added to the final document. We asked all participants to declare any conflicts of interest they may have in relation to this topic, which are detailed at the end of this document.

GENERAL COMMENTS AND METHODOLOGICAL ANALYSIS

All of the recommendations made by the 2011 ESC guidelines for NSTEMI-ACS are summarized in tables using the same structure: *a)* indications for the recommendation; *b)* level of recommendation; *c)* level of evidence provided to back the recommendation, and *d)* bibliographic references. This systematic structural order facilitates easy consultation in normal circumstances of daily clinical practice. A total of 16 tables are presented in the guidelines, with a total of 99 recommendations. The majority of the recommendations are class I (79 out of 99), which implies evidence and/or general agreement that a given treatment and/or procedure is beneficial, useful, and effective. Indeed, these guidelines encompass and provide a good summary of the strongest supported evidence for the management of patients with NSTEMI-ACS, and in general the recommendations made leave little to question. Two thirds of the recommendations are based on the results from clinical trials or meta-analyses that are appropriately referenced in the tables, while the final third is based on expert

SEE RELATED ARTICLE:

DOI: 10.1016/j.rec.2011.11.006, Rev Esp Cardiol. 2012;65:173.e1-e55.

*Corresponding author: Comité de Guías de Práctica Clínica, Sociedad Española de Cardiología, Casa del Corazón, Ntra. Sra. de Guadalupe 5, 28028 Madrid, Spain.

E-mail: afernandez.hcsc@salud.madrid.org (A. Fernández-Ortiz).

consensus opinion (26 recommendations supported by level A evidence, 37 by level B evidence, and 36 level C). Indirectly, the level C recommendations indicate the gaps of scientific knowledge on how to manage NSTEMI-ACS. The same guidelines should propose well-designed studies in order to obtain the scientific evidence indicated by these gaps. A first comparison with the USA guidelines for the management of NSTEMI-ACS⁴ highlights the fact that, whereas the North American guidelines make 281 recommendations grouped in the text, without providing any precise reference to support them, the new European guidelines appear to be more simple and transparent for those consulting the document in order to make a clinical decision for the management of patients with NSTEMI-ACS.

RELEVANT AND/OR NOVEL ASPECTS

The most important and innovative aspects identified by the task force are summarized in the Table.

Initial Diagnosis and Prognostic Evaluation

The new guidelines insist that patients suspected of NSTEMI-ACS should be preferentially evaluated in chest pain or coronary care units, emphasizing the role of the cardiologist in this initial phase of management (class I, evidence C). In our context, with a large proportion of regional hospitals, it is impossible to guarantee compliance with this recommendation, but even so it serves as a goal for excellence.

One important development is the recommendation to use ultrasensitive troponin for the initial diagnosis of NSTEMI-ACS (IB). These reactants lower the detection limit for troponin and facilitate an earlier identification of myocardial necrosis.⁵ Within 6 h of the first episode of pain, the guidelines recommend a second measurement of ultrasensitive troponin 3 h after arriving at the emergency room (the recommendation for conventional troponin was 6-9 h). It is important to point out this speed of diagnosis, but also to remember that, due to its very high sensitivity, these reactants can detect acute or chronic increases in troponin in myocardial lesions that are not due to ACS. We should also point out that normal ultrasensitive troponin levels do not rule out unstable angina, and therefore care should be taken in discharging these patients. Based on these points, the guidelines recommend a period of adaptation and training before implementing

these new markers, as well as rightfully recommending the elimination of other markers in emergency situations such as total creatine kinase and MB mass.

Based on expert opinion, the European guidelines recommend an early echocardiogram in all patients suspected of NSTEMI-ACS (IC), whereas the American guidelines do not.⁴ In this initial phase, the echocardiogram is considered to be the most important imaging technique, which reinforces the role of cardiologists in this context. Surely, the discrepancy between the two guidelines is based on the difficulty in many situations for a center to have emergency access to doctors with the capacity for correctly performing and interpreting these tests. The identification and quantification of abnormal segmental contractility requires experience, especially in situations of hemodynamic instability or, for example, when suspecting a posterior infarction that could be addressed by early coronary reperfusion.⁶

Another new development is the recommendation to perform multi-slice computed tomography for the coronary examination of patients suspected of NSTEMI-ACS with negative ECG and troponin results and a low or intermediate probability of acute ischemia (IIaB). Although the proposal is adequately presented, the guidelines are more cautious in making this recommendation because of the low availability of this technique and of qualified professionals to perform and interpret the analysis on an emergency basis.⁷

Prognostic staging returned as a relevant topic in the guideline, placing special emphasis on the use of the GRACE scale for mortality risk in-hospital and after 6 months (IB) and, as a new development, the CRUSADE scale for risk of bleeding (IB). The systematic adoption of these scales is a magnificent tool for homogenizing prognostic staging, which is a task frequently marred by variability. In our field, both scales have been recently validated,^{8,9} but, as in other countries, they are not used routinely, and no studies have analyzed the reasons for this. Another new development in risk assessment is cocaine use in young patients as an indicator for greater myocardial damage and risk of complications, and an ST elevation >0.1mV in aVR as an indicator of left main trunk or three-vessel disease. As far as biomarkers are concerned, troponin is the only available biomarker (IA), and in contrast to the previous European guidelines but in line with the North American guidelines,⁴ the use of other biomarkers such as the newest markers of ischemia, C-reactive protein, and natriuretic peptides is not explicitly recommended.

Table
Principal New Developments in the Clinical Practice Guidelines of the European Society of Cardiology for the Management of Acute Coronary Syndrome in Patients Without Persistent ST-Segment Elevation²

| New recommendations | Class ^a | Level ^b |
|--|--------------------|--------------------|
| The use of a rapid resolution protocol (laboratory results within 0-3 h) in the diagnosis of NSTEMI-ACS when ultrasensitive troponin is available | I | B |
| Systematic stratification of patient prognoses with an ischemic risk scale (GRACE) and a bleeding risk scale (CRUSADE) | I | B |
| Inclusion of echocardiogram in the diagnostic process and an evaluation of the risk of NSTEMI-ACS in emergency services and chest pain units | I | C |
| The use of ticagrelor in patients with moderate-to-high risk of ischemic events, regardless of the initial treatment strategy used, including patients already treated with clopidogrel and those with unknown coronary anatomy | I | B |
| The use of prasugrel in patients with known coronary anatomy that have not previously taken a P2Y ₁₂ inhibitor and that are candidates for PCI, unless there is a life-threatening high risk of bleeding or other contraindications | I | B |
| Recommendation to use clopidogrel for only those patients that cannot take prasugrel or ticagrelor | I | A |
| Use of fondaparinux with antiplatelet drugs as the first option for anticoagulation therapy in patients at low or moderate-to-high risk of ischemic events | I | A |
| Systematic use of invasive strategies, with emphasis on the importance of a proper stratification of risks in this heterogeneous group of patients | I | A |
| Coronary angiography within the first 24 h for patients with a GRACE scale score >140 or at least one primary criterion for high risk | I | A |
| Therapeutic target of cLDL at <70mg/dl | I | B |

cLDL: cholesterol bound to low density lipoprotein; PCI: percutaneous coronary intervention; NSTEMI-ACS: non-ST-elevation acute coronary syndrome.

^aClass of recommendation.

^bLevel of evidence.

Antiplatelet Drugs

The new guidelines still fail to clear up the role of platelet function tests and genetic tests in patients with dual oral antiplatelet treatment. Currently, there is insufficient scientific evidence to support the systematic use of these tests; however, the guidelines do make the weak recommendation to consider the use of these tests in "select cases" (IIbB), although they withhold any indications as to how to select these cases.

Meanwhile, the guidelines show clear support for the new P2Y₁₂ receptor inhibitors. Clopidogrel is relegated as a treatment only for patients that "cannot receive ticagrelor or prasugrel" (IA). This recommendation is justified by the detailed analysis of the results from the TRITON-TIMI 38 and PLATO studies, showing the superiority of prasugrel and of ticagrelor over clopidogrel. We should keep in mind that these studies included both patients with and without ST elevation in well-differentiated populations, which limits the extrapolation of these results to an exclusive guideline for NSTEMI-ACS. On the other hand, the difficulty in establishing comparisons between prasugrel and ticagrelor provides an impediment to the clinician when looking for some type of recommendation for clinical practice. Based on indirect evidence, with its inherent limitations, prasugrel is considered to be especially beneficial in diabetic patients treated with percutaneous coronary interventions (PCI) and in the prevention of stent thrombosis, whereas ticagrelor, thanks to the design and results from the PLATO study, provides an alternative to clopidogrel in the treatment of patients with NSTEMI-ACS. The pharmacokinetics of ticagrelor appear to also contribute a lower risk of bleeding, above all in candidates for heart surgery, although we should point out that nonsurgical hemorrhages were similar when using prasugrel or ticagrelor in both studies. In the absence of comparative studies, we cannot find any substantial argument to prefer one over the other. Based solely on cost, it would appear reasonable that each center make its choice and start to use it in clinical situations with the most favorable cost-benefit scenario.

The most relevant finding in the field of glycoprotein IIb/IIIa inhibitors (GPIIb/IIIa) is the confirmation of the "demotion" of routinely indicating these antiplatelets as an upstream treatment (before coronary angiography) to a class III recommendation with level A evidence. This recommendation is based on the results from the EARLY-ACS and a sub-study within the framework of the ACUITY study, and is similar to the recommendations made recently by the ESC in its revascularization guidelines.¹⁰ Both studies demonstrated a trend toward decreased ischemic events when using anti-GPIIb/IIIa, but the risk of bleeding was greater. This recommendation has led many professionals to believe that preloading with clopidogrel or the use of oral antiplatelets is sufficient for all patients with NSTEMI-ACS. In this sense, we must emphasize that the studies performed with prasugrel and ticagrelor were not carried out as comparisons against but rather in combination with anti-GPIIb/IIIa, and specifically in the case of prasugrel, there appears to be an additive and synergetic benefit from the use of these two treatments.¹¹ Additionally, the risk of bleeding is to a large extent due to the vascular access used for the PCI, which is usually femoral in the studies we have cited. In any event, the most commonly used approach is the radial access point, which is seen in over half of all PCIs performed.¹² Despite this fact, the European guidelines maintain a certain level of caution, leaving the door open for the upstream use of anti-GPIIb/IIIa in high risk, unmedicated patients with an oral P2Y₁₂ receptor inhibitor (IIaC) and in patients that, although receiving dual oral antiplatelet treatment, have ischemia progressing with a low risk of bleeding (IIbC).

Anticoagulants

The new guidelines defend some anticoagulants over others, which can be especially useful for doctors with less experience in

choosing which anticoagulant drug to prescribe. Less focus is placed on the strategy for selecting an anticoagulant, and fondaparinux is preferred regardless of the situation (IA). Only if fondaparinux is not available, the guidelines recommend enoxaparin (IB) or unfractionated heparin (UFH) if no other options are available (IC).

Although this simplification has clear advantages for the clinical management of patients, we should bring into question whether the available scientific evidence is sufficient for guaranteeing a universal recommendation for the use of fondaparinux in NSTEMI-ACS patients. This recommendation is based mainly on the better safety profile of fondaparinux, which is important when anticoagulation therapy is prolonged for several days; on the other hand, this situation is uncommon if the early invasive strategy proposed by the guidelines is used. Additionally, this recommendation is based on the results from one single study, the OASIS-5, which is a very large and high-quality study, but not without its limitations. For example, the inclusion criteria were modified once the study was underway, after observing a low incidence of primary events; there were differences in the proportion of patients that received UFH after randomization, 60% were treated medically and only 31% with PCI; and the PCI that were performed involved intervals ≥ 24 h in 70% of cases. With all this in mind, the results from the OASIS-5 study should be extrapolated with caution to the general population of NSTEMI-ACS patients, which are currently predominantly treated using the early invasive strategy (as recommended by the guidelines). Finally, we should repeat that the radial access point is currently much more common in our field,¹² and the risk of bleeding is lower. In fact, the data from the OASIS-5 study showed the greatest reduction in hemorrhage rates with fondaparinux when using femoral catheters.¹³

Bivalirudin is reserved for patients with an urgent or early invasive strategy, above all in the presence of an elevated risk of bleeding (IB). The guidelines do draw attention by not clarifying how and in which patients to use enoxaparin, this being the most commonly used anticoagulant in our field of medicine. It also stands out that UFH has been moved to a third option anticoagulant for treating NSTEMI-ACS, in contrast with the American guidelines, which support this drug as the first option along with enoxaparin,⁴ and with the NICE recommendations,¹⁵ which also keep it as the first treatment option when planning an early coronary angiography or in the case of renal failure.

In this regard, the guidelines also make very clear that switching from enoxaparin to UFH during PCI is not advisable (IIIB). These patients are not recommended to receive additional anticoagulant doses if the last dose of enoxaparin was administered within 8 h prior to PCI. If more than 8 h have elapsed, an additional intravenous dose of 0.3mg/kg of enoxaparin should be administered. The recent American guidelines for coronary revascularization¹⁴ also insist on the importance of the patient having received at least two doses of subcutaneous enoxaparin if this prescription is to be taken into account in the hemodynamic analysis. Finally, there is an added complexity to this issue that the guidelines point out: the switch from UFH or enoxaparin to bivalirudin during PCI does not increase the risk of bleeding.

Coronary Revascularization

The new guidelines confirm invasive procedures using systematic coronary angiography as the most useful, beneficial, and effective strategy in NSTEMI-ACS patients. This recommendation is based on four meta-analyses that support the systematic use of an invasive strategy in moderate and high-risk patients. The guidelines also provide a good summary of the available information regarding the optimal moment for performing a coronary angiography and possible revascularization, basing the decision on the patient's risk profile and emphasizing the merits of an emergency invasive strategy (<2h) in very-high-risk patients and early management (<24h) in high-risk patients. In our context, we must point out that in many centers

without the capacity for hemodynamic analysis, it is uncommon for a coronary angiography to be rapidly available. Given the notable proportion of patients with at least one high-risk criterion (increased troponin levels, changes in repolarization, diabetes mellitus, low glomerular filtration rate, diminished left ventricular ejection fraction, postinfarction angina, recent PCI or new surgery, or elevated GRACE), this recommendation should be seen as an opportunity to improve the care provided to these patients, mainly in centers without access to hemodynamics laboratories.

This guideline makes the novel reference to the role of the Heart Team in making decisions on the various techniques used for coronary revascularization. In the majority of patients, the guidelines allow for and recommend treating the causative lesion using PCI immediately following coronary angiography, according to the clinical and/or angiographic results. In patients with multi-vessel disease and a high SYNTAX score, following PCI treatment of the causative lesion the Heart Team should discuss the available revascularization options in light of the functional assessment of remaining lesions, comorbidities, and other patient characteristics. This recommendation was a classic request by clinical cardiologists; however, we should point out that we do not actually have solid evidence on how to stratify patients once they have been treated with PCI for the causative lesion. An extrapolation of the SYNTAX data for these patients could be reasonable, but it would still be speculation. We must remember that the SYNTAX score is based exclusively on angiography results, without considering the clinical aspects of each patient.

Special Conditions and Populations

The current guideline has expanded this section, adding complications specific to NSTEMI-ACS and its treatment. It stands out that a notable proportion of patients with NSTEMI-ACS treated in our field fall within these special populations, which are not normally included in the trials referenced by the guideline. In our environment, the mean age of NSTEMI-ACS patients is 69 years, with 34% to 40% women and 31%-36% diabetics.^{16,17} As a result, the majority of the recommendations made by this guideline for diabetics, patients with renal failure, and the management of hemorrhages are all derived from expert opinions (IC).

This guideline recommends calculating renal function using the MDRD equation, whereas the technical specifications for the majority of drugs use the Cockcroft formula for adjusting doses in patients with renal failure. When working with this population, we must also consider the greater risk of bleeding when choosing the antithrombotic treatment to use. Here, the information provided by the guidelines for the new oral antiplatelet medications is unclear. Ticagrelor, which was especially beneficial in patients with moderate renal failure, appears to have an uncertain effect in dialysis patients, whereas prasugrel appears to be useful even in terminal renal failure patients.

Management Strategies

The general scheme for initial evaluations, diagnostic confirmation, and risk stratification is similar to the previous guidelines. It is interesting to point out that the rigorous use of risk scales has not yet resulted in significant improvements in the management strategies used in these patients.¹⁸ On the other hand, the recommendation of coronary angiography within 24 h for patients with GRACE > 140 could be considered excessively simplistic. We should keep in mind that a patient older than 80 years with no other risk parameters already has a GRACE > 140, as does a patient older than 70 with creatinine > 2 mg/dl. The benefit of such an early invasive strategy in these common situations has not been demonstrated.

The new guidelines precisely clear up the recommended time lapse between the first medical visit and the coronary angiography based on the risk level established for each patient. Again, the

guidelines include new references to the role of the Heart Team and the invasive functional study of flow reserve for deciding upon revascularization and selected which method should be used for multi-vessel disease patients. In any case, the guidelines should have pointed out the limitations to this technique in the context of ACS.¹⁹

Long-Term Management

The studies that support the recommendations made in this new guideline on secondary prevention drugs were not all performed with NSTEMI-ACS patients. For example, the change in eplerenone use from IB to IA status is based on the results from the EMPHASIS study,²⁰ which included patients with ventricular function $\leq 35\%$ and functional class II with or without ACS. Also, the new indication for angiotensin-converting enzyme inhibitors for secondary prevention is based on two meta-analyses of 7 clinical trials that excluded patients with recent myocardial infarction or ACS.^{21,22}

The document also makes reference to the benefit of beta blockers in patients with an ejection fraction $\leq 40\%$ (IA) and proposes the inclusion of this treatment in the quality indicators that must be checked to discharge the patient. Here we were surprised that the importance of beta blockers in the other patients was not discussed, even more so taking into account that their use is considered to be key to explaining the reduced mortality from ischemic heart disease in recent years,²³ and that its use is an indicator for good clinical practice in the majority of clinical registries.

The guideline also recommends rehabilitation/prevention programs in moderate- to high-risk patients and those with multiple risk factors. The value of these programs has been sufficiently demonstrated, but the availability of cardiovascular rehabilitation centers is quite limited in our environment.²⁴ On the other hand, we should reinforce the fact that the greatest prognostic advantage is obtained in patients that comply with long-term therapeutic objectives, in particular reducing risk factors. In this sense, and as a new development, the guidelines adhere to the recent ESC guideline for managing dyslipidemias,²⁵ with a therapeutic cholesterol bound to low density lipoprotein target of < 70 mg/dl (IA).

ASPECTS IN WHICH THE GUIDELINES ARE LACKING

Treatment Algorithms and Strategies

Among the most highly awaited and valued aspects of the guidelines are their management and/or treatment algorithms. The rapid exclusion method for NSTEMI-ACS using high-sensitivity troponin is a new and welcome algorithm, but other similar formulas are needed in other areas, for example, in the initial management of patients with chest pain, the early indications and types of tests for detecting ischemia, the management of low-risk patients, and how to cope with anticoagulants in hemodynamics laboratories.

The guidelines also do not discuss the optimal placement of NSTEMI-ACS patients according to risk profiles, nor do they define the exact role of cardiologists in the diagnosis and initial management of these patients. Certain logistical questions such as the recommended length of hospital stay or the early discharge criteria for low-risk or already revascularized patients are also not discussed in the guidelines.

Use of Oral Anticoagulants

This aspect is very important and highly sought after by clinical cardiologists. The guidelines continue to lack a recommended strategy for patients that simultaneously need anticoagulants and dual oral antiplatelets, for example patients with atrial fibrillation and a coronary stent. Here the recommendation is to follow the precautions and advice given in a consensus document published by the ESC in 2010,²⁶ although there is no clear recommendation made for this

important topic, especially considering the use of new anticoagulants (dabigatran, rivaroxaban, apixaban, and edoxaban) in this population. We must also add the recently published results of the ATLAS-TIMI 51 study,²⁷ which demonstrate reduced mortality in patients taking rivaroxaban as their anticoagulant after suffering ACS.

Logistical Aspects of Revascularization

For the most part, mentions of coronary revascularization surgery are based on the extrapolation of results from stable patients. Here the lack of commentary on the availability and accessibility of PCI in emergency contexts is felt. In daily clinical practice, the result of frequent delay of surgical procedures, in part due to the insistence on suspending dual oral antiplatelets before the procedure, is that when faced with both valid revascularization options the patient is finally treated with PCI. We should also point out that the only mention made in the guidelines regarding revascularization of the left coronary trunk appears within the surgical strategy, whereas PCI is recommended (IIaB) for certain lesions of the left coronary trunk in the European¹⁰ and American¹⁴ guidelines.

Discharge From the Hospital and Follow-up

Nonpharmacological measures for secondary prevention are superficially discussed, and the reader is referred to the previous version of this size, there should be a place for certain important aspects such as the prescription of physical exercise, assessment of functional capacity, reincorporation into the workforce, and basic advice for leisure activities, sexual relations, etc.

Certain Special Populations

The section dedicated to female patients in these guidelines is brief. The same can be said for variant angina, cardiac syndrome X, and Tako-Tsubo syndrome, which are all given more emphasis in the American guidelines.⁵ For special populations, pharmacological recommendations given only to discuss the anticoagulant/antiplatelet treatment for renal failure patients. Nor is there any reference made to the specific recommendations for revascularization in special populations, with the need for some type of advice in the management of NSTEMI-ACS patients with previous coronary surgery, or in drug users (cocaine, methamphetamine, etc.).

Economic Analysis

In this time of economic crisis, when debates on health costs are central to the current political discussions, we need references to studies on the cost-effectiveness of the recommendations made by these guidelines. Any reference in this sense would make the guidelines more applicable in real-world situations. For example, many of the recommendations facilitate patient management and avoid or at least reduce length of hospitalization and health costs, whereas other highly recommended treatments cannot be carried out in the indicated manner due to elevated costs. In this context, a rigorous review is needed, similar to those carried out by rating agencies such as the British NICE,¹⁵ in order to understand the true impact of these treatments in terms of efficiency. In this manner, health professionals will have a better background of knowledge and confidence in choosing how to apply the guidelines.

CONCLUSIONS AND IMPLICATIONS

These new guidelines provide clear recommendations that are easy to consult and, for the most part, are well supported by scientific evidence. In particular, we want to point out the recognition of

NSTEMI-ACS patients as a heterogeneous group, the recommendation to stratify risk of ischemia and hemorrhage in order to better decide on the proper treatment, the role of high-sensitivity troponin in accelerating the diagnostic process, the firm recommendation of echocardiograms in the initial diagnostic process, the incorporation of new oral antiplatelets, the choice of anticoagulants, the confirmation of the invasive strategy and the optimal moment for coronary revascularization, the incorporation of the Heart Team into the decision-making process, and the redefinition of management objectives following the discharge of patients from the hospital.

The new guidelines also speak out against certain concepts, including “cooling off the patient” and “hospitalization for examination”; they urge that decisions be made following first contact with the patient and that in order for these to be the proper decisions, an integrated reorganization is needed in the process of patient care, with the availability of high-sensitivity troponin, echocardiography, ischemia detection testing, and coronary angiography within the first few hours following a diagnosis. Based on this new guideline, each center should develop a protocol for their management of NSTEMI-ACS in order to minimize risks and to avoid, for example, potential errors in changes or overlapping of treatments based on individual preferences. In this context, the cardiology department is probably the best suited for effectively integrating all of the needs inherent in this health care process.

CONFLICTS OF INTEREST

A. Fernández-Ortiz: consultancy (Lilly, MSD, Chiesi, Ferrer), papers (Sanofi-Aventis, Bayer, Chiesi, GSK, Astra-Zeneca, Ferrer, Roche, Daiichi-Sankyo, Lilly), presentations (GSK, MSD) and grant (Sanofi-Aventis). F. Arós: presentations (Astra-Zeneca). J.A. Barrabés: consultancy (Astra-Zeneca) and presentations (Bayer). A. Cequier: consultancy (Abbott, Lilly, Daiichi-Sankyo, Astra Zeneca) and papers (Boston Scientific, Ferrer, Medtronic, Iroko, The Medicines Company, Medtronic). X. García-Moll: consultancy (Astra-Zeneca, Menarini, Novartis, Recordati), papers (Almirall, Astra-Zeneca, Bayer, Boehringer-Ingelheim, Daiichi-Sankyo, Esteve, Menarini, MSD, Novartis, Recordati, Rovi, Servier), presentations (Menarini) and grant (Daiichi-Sankyo). J. Jiménez-Candil: consultancy (Medtronic, St. Jude, Boston Scientific) and papers (Rovi, Astra-Zeneca, Boehringer-Ingelheim, Sanofi-Aventis, Almirall). F. Worner: consultancy (Daiichi-Sankyo, Chiesi), papers (Daiichi-Sankyo) and presentations (Chiesi). A. Bardají: consultancy (Astra-Zeneca, Novartis, Rovi), papers (Menarini). J. Goicolea: consultancy (Cordis, Abbott, BSC, Terumo, Biotronik), grant (Cordis), papers (Medtronic, BSC, Biotronik, Hexacath) and presentations (St. Jude, Abbott, BSC, Medtronic). F. Marín: consultancy (Boehringer-Ingelheim, Bayer), grant (Boston Scientific, Abbott, Roche, Uriach). I. Roldán: consultancy (Astra-Zeneca, Daiichi-Sankyo, Bayer). M. Sabaté: papers (Abbott, Cordis, Medtronic). J. Sanchis: papers (Lilly).

REFERENCES

- Hamm CW, Bassand JP, Agewall S, Bax J, Boersma E, Bueno H, et al. ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: The Task Force for the management of acute coronary syndromes (ACS) in patients presenting without persistent ST-segment elevation of the European Society of Cardiology (ESC). *Eur Heart J*. 2011;32:2999-3054. Epub 2011 Aug 26.
- Hamm CW, Bassand JP, Agewall S, Bax J, Boersma E, Bueno H, et al. Guía de práctica clínica de la ESC para el manejo del síndrome coronario agudo en pacientes sin elevación persistente del segmento ST. *Rev Esp Cardiol*. 2012;65:173.e1-e55.
- Anguita M, Fernández-Ortiz A, Worner F, Alonso A, Cequier A, Comín J, et al. La Sociedad Española de Cardiología y las guías de práctica clínica de la SEC: hacia una nueva orientación. *Rev Esp Cardiol*. 2011;64:795-6.
- Wright RS, Anderson JL, Adams CD, Bridges CR, Casey DE Jr, Ettinger SM, et al. 2011 ACCF/AHA focused update incorporated into the ACC/AHA 2007 Guidelines for the Management of Patients with Unstable Angina/Non-ST-Elevation Myocardial Infarction: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines developed in collaboration

- with the American Academy of Family Physicians, Society for Cardiovascular Angiography and Interventions, and the Society of Thoracic Surgeons. *J Am Coll Cardiol.* 2011;57:e215-367.
5. Jaffe AS, Ordonez-Llanos J. Troponinas ultrasensibles en el dolor torácico y los síndromes coronarios agudos. ¿Un paso hacia delante? *Rev Esp Cardiol.* 2010;63:763-9.
 6. Figueras J, Ferreira-González I, Rizzo M, Alcalde O, Barrabés JA, Domingo E, et al. High incidence of TIMI flow 0 to 1 in patients with ST-elevation myocardial infarction without electrocardiographic lytic criteria. *Am Heart J.* 2009;158:1011-17.
 7. Kontos MC. Exploraciones de imagen no invasivas para la evaluación de los pacientes de bajo riesgo en unidades de dolor torácico: disponibilidad, utilidad e inconvenientes en la práctica clínica real. *Rev Esp Cardiol.* 2011;64:92-5.
 8. Abu-Assi E, Ferreira-González I, Ribera A, Marsal JR, Cascant P, Heras M, et al. Do GRACE (Global Registry of Acute Coronary events) risk scores still maintain their performance for predicting mortality in the era of contemporary management of acute coronary syndromes? *Am Heart J.* 2010;160:826-34.
 9. Abu-Assi E, Gracia-Acuña JM, Ferreira-González I, Peña-Gil C, Gayoso-Diz P, González-Juanatey JR. Evaluating the performance of the Can Rapid Risk Stratification of Unstable Angina Patients Suppress Adverse Outcomes With Early Implementation of the ACC/AHA Guidelines (CRUSADE) bleeding score in a contemporary Spanish cohort of patients with non-ST-segment elevation acute myocardial infarction. *Circulation.* 2010;121:2419-26.
 10. Wijns W, Kolh P, Danchin N, Di Mario C, Falk V, Folliguet T, et al. Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS); European Association for Percutaneous Cardiovascular Interventions (EAPCI), Guidelines on myocardial revascularization. *Eur Heart J.* 2010;20:2501-55.
 11. O'Donoghue M, Antman EM, Braunwald E, Murphy SA, Steg PG, Finkelstein A, et al. The efficacy and safety of prasugrel with and without a glycoprotein IIb/IIIa inhibitor in patients with acute coronary syndromes undergoing percutaneous intervention: a TRITON-TIMI 38 (Trial to Assess Improvement in Therapeutic Outcomes by Optimizing Platelet Inhibition With Prasugrel-Thrombolysis In Myocardial Infarction analysis). *J Am Coll Cardiol.* 2009;54:678-85.
 12. Díaz JF, de la Torre JM, Sabaté M, Goicolea J. Registro Español de Hemodinámica y Cardiología Intervencionista. XX Informe Oficial de la Sección de Hemodinámica y Cardiología Intervencionista de la Sociedad Española de Cardiología (1990-2010). *Rev Esp Cardiol.* 2011;64:1012-22.
 13. Hamon M, Mehta S, Steg PG, Faxon D, Kerkar P, Rupprecht HJ, et al. Impact of transradial and transfemoral coronary interventions on bleeding and net adverse clinical events in acute coronary syndromes. *EuroIntervention.* 2011;7:91-7.
 14. Levine GN, Bates ER, Blankenship JC, Bailey SR, Bittl JA, Cercek B, et al. 2011 ACCF/AHA/SCAI Guideline for percutaneous coronary intervention. American College of Cardiology Foundation; American Heart Association Task Force on Practice Guidelines; Society for Cardiovascular Angiography and Interventions. *J Am Coll Cardiol.* 2011 [Epub ahead of print].
 15. Unstable angina and NSTEMI: the early management of unstable and non-ST-segment-elevation myocardial infarction. NICE guidelines; Mar 2010. Available at: <http://guidance.nice.org.uk/CG94>
 16. Bueno H, Bardají A, Fernández-Ortiz A, Marrugat J, Martí H, Heras M; en representación de los investigadores del estudio DESCARTES. Manejo del síndrome coronario agudo sin elevación del segmento ST en España. Estudio DESCARTES (Descripción del Estado de los Síndromes Coronarios Agudos en un Registro Temporal Español). *Rev Esp Cardiol.* 2005;58:244-52.
 17. Ferreira-González I, Permanyer-Miralda G, Marrugat J, Heras M, Cuñat J, Civeira E, et al.; en representación del grupo de investigación del estudio MASCARA. Estudio MASCARA (Manejo del Síndrome Coronario Agudo. Registro Actualizado). Resultados globales. *Rev Esp Cardiol.* 2008;61:803-16.
 18. Flather MD, Babalis D, Booth J, Bardaji A, Machecourt J, Opolski G, et al. Cluster-randomized trial to evaluate the effects of a quality improvement program on management of non-ST-elevation acute coronary syndromes: The European Quality Improvement Programme for Acute Coronary Syndromes (EQUIP-ACS). *Am Heart J.* 2011;162:700-7.
 19. López-Palop R, Carrillo P, Frutos A, Castillo J, Cordero A, Toro M, et al. Utilidad de la reserva fraccional de flujo obtenida mediante guía intracoronaria de presión en la valoración de lesiones angiográficamente moderadas en el síndrome coronario agudo. *Rev Esp Cardiol.* 2010;63:686-94.
 20. Zannad F, McMurray JJ, Krum H, Van Veldhuisen DJ, Swedberg K, Shi H, et al. Eplerenone in patients with systolic heart failure and mild symptoms. *N Engl J Med.* 2011;364:11-21.
 21. Dagenais GR, Pogue J, Fox K, Simoons ML, Yusuf S. Angiotensin-converting-enzyme inhibitors in stable vascular disease without left ventricular systolic dysfunction or heart failure: a combined analysis of three trials. *Lancet.* 2006;368:581-8.
 22. Danchin N, Cucherat M, Thuillez C, Durand E, Kadri Z, Steg PG. Angiotensin-converting enzyme inhibitors in patients with coronary artery disease and absence of heart failure or left ventricular systolic dysfunction: an overview of long-term randomized controlled trials. *Arch Intern Med.* 2006;166:787-96.
 23. Ford ES, Ajani UA, Croft JB, Critchley JA, Labarthe DR, Kottke TE, et al. Explaining the decrease in U.S. deaths from coronary disease, 1980-2000. *N Engl J Med.* 2007;356:2388-98.
 24. Cano de la Cuerda R, Alguacil Diego IM, Alonso Martín JJ, Molero Sánchez A, Miangolarra Page JC. Programas de rehabilitación cardíaca y calidad de vida relacionada con la salud. Situación actual. *Rev Esp Cardiol.* 2011 [Epub ahead of print].
 25. European Association for Cardiovascular Prevention & Rehabilitation, Reiner Z, et al. ESC/EAS Guidelines for the management of dyslipidaemias: the Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS). *Eur Heart J.* 2011;32:1769-818.
 26. Lip GY, Huber K, Andreotti F, Arnesen H, Airaksinen JK, Cuisset T, et al. Consensus Document of European Society of Cardiology Working Group on Thrombosis. Antithrombotic management of atrial fibrillation patients presenting with acute coronary syndrome and/or undergoing coronary stenting: executive summary –a Consensus Document of the European Society of Cardiology Working Group on Thrombosis, endorsed by the European Heart Rhythm Association (EHRA) and the European Association of Percutaneous Cardiovascular Interventions (EAPCI). *Eur Heart J.* 2010;31:1311-8.
 27. Catapano AL, De Backer G, Graham I, Taskinen MR, Wiklund O, Mega JL, et al. The ATLAS ACS 2-TIMI 51 Investigators. Rivaroxaban in patients with a recent acute coronary syndrome. *N Engl J Med.* 2011 [Epub ahead of print].