Health Promotion to Reduce Delays in Seeking Medical Attention in Patients With Acute Coronary Syndrome. Response

Promoción de salud para reducir el retraso en buscar atención médica de los pacientes con síndrome coronario agudo. Respuesta

To the Editor,

We appreciate the comments of Moreno-Martínez et al concerning our article published in *Revista Española de Cardiología*.[1] In that study, we demonstrated the importance of the delay in seeking medical attention (DSMA) as the period of time that most influences total ischemia time. Given that a decrease in time-dependent morbidity and mortality has been shown in patients with ST-segment elevation acute coronary syndrome who undergo primary percutaneous coronary interventions, the main objective of acute ischemic heart disease care networks is to reduce these times.[2–4] Although published series have demonstrated that DSMA is the major determinant of total ischemia time, most of the efforts of care networks are focused on reducing the time between the call for attention and reperfusion.[2–4] The general population has little knowledge of the symptoms consistent with acute coronary syndromes.[5] In addition, there are discrepancies concerning the efficacy of public awareness campaigns focusing on symptom recognition and the importance of an immediate call for medical assistance.[6] The results of an intervention campaign, the "*Salva una vida*" (Save a Life) project, which was recently conducted in Catalonia, in northeastern Spain, in conjunction with the European "Stent for Life" initiative, are pending analysis. In our study, we identified 3 major groups—older patients, women, and diabetic patients—that should be the focus of these strategies.[1] Thus, we agree on the need to carry out primary prevention campaigns, with the indispensable collaboration of family medicine physicians, aiming not only toward the essential control of risk factors, but also toward making populations at high risk for DSMA aware of the need to call for assistance immediately after recognizing symptoms consistent with acute ischemic heart disease. We hope that future studies will shed light on the best way to achieve the effective implementation of these strategies in the general population.

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Multistate Models for Survival Analysis of Cardiovascular Disease Process

Modelos multiestado para el análisis de supervivencia en procesos de enfermedad cardiovascular

To the Editor,

Noncommunicable diseases (NCD) are a major cause of death worldwide. About 63% of the 57 million global deaths in 2008 were due to NCD, which are also on the rise every year.[1] Four important NCD include cardiovascular diseases, chronic pulmonary diseases, cancers, and diabetes. The World Health Organization has focused on 4 main serious contributors to NCD: an unhealthy diet, cigarette smoking, excessive alcohol consumption, and physical inactivity. Ischemic heart diseases and cerebrovascular diseases were and are predicted to be the 2 leading causes of death in 2002 and 2030.[2,3] With an aging population and advances in the diagnosis of cardiovascular diseases in Iran, we are seeing a considerable increase in the incidence of cardiovascular diseases. However, despite good progress in the treatment of these diseases, the mortality rate from cardiovascular diseases remains high.[4,5]

A main determining factor concerning NCD is their early detection. Unless medical staff detect an NCD as early as possible, it will lead to chronic conditions, imposing a large financial burden on families and the health care system over time. In recent years, advanced statistical methods such as advanced regression models, artificial neural networks, Markov and hidden Markov models, and decision trees, to mention a few of them, have been developed to lead to more accurate and earlier detection of various diseases.

There are a wide range of methods to evaluate the clinical characteristics and cardiovascular disease process. Furthermore, clinicians are interested in both the final outcome and the dynamics of the process itself. To improve understanding of disease prognosis, a series of models are suggested that simultaneously consider progression, the mortality rate, and related factors.

Multistate models are stochastic processes in which patients could occupy different intermediate states (disease conditions) before the final outcome at any time.[6] In medical applications, the states may represent remission, different severities of the disease, discharge, or hospital infection. The effect of treatment and risk factors could be investigated using multistate models through patients' transitions in various states. Some associated factors

depend on time, eg, recurrence of a specific event (such as heart failure or myocardial infarction). The best approach to take into account for these kinds of variables in cardiovascular diseases is multistate models, while other methods have some limitations for time-dependent variables. Despite the importance of cardiovascular diseases and, given the fact that by 2030, the leading causes of death in the high-, middle- and low-income countries will be cardiovascular diseases,[2] there are few studies about the application of multistate models in cardiovascular diseases. Two examples are Ieva et al[7] and Zhang et al.[8]

To sum up, multistate models can lead to early detection, improved disease prognosis, and reduced cost of the disease for families and governments, which are the main concerns of ministries of health and other policymakers. Therefore, it is suggested that this model be more focused on by policymakers to save financial resources and reduce the costs of the health system.

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About the Micra Transcatheter Pacing System

Acerca del sistema de marcapasos transcatéter Micra

To the Editor,

We read in detail the interesting article by Pachón et al[1] on implantation of the Micra transcatheter pacing system. Due to its characteristics, this model could undoubtedly be extremely useful in certain patients.[2] However, it has certain limitations. Regarding the series of 10 patients presented, we would like to make several observations:

Of the 10 patients, 2 (patients 5 and 8) were in sinus rhythm prior to implantation; usually, implantation with a DDD pacemaker would be indicated in this situation. With right ventricular pacing only, atrial fibrillation is likely to develop in the medium- to long-term. This is particularly likely in the case of the patient with a pacing percentage of more than 20%, as measured after implantation. Aside from the clinical deterioration that could result from the loss of atrioventricular synchrony, the patient would require anticoagulation. In the case of the other patient with a baseline sinus rhythm, the R wave amplitude was only 4.7 mV after the first implantation, whereas the manufacturer's recommendation[3] is $\geq$ 5 mV.

Patients 1 and 2 have a pacing threshold of 0.24 ms higher than the manufacturer's recommendation in the technical specifications[3] (1 mV).

Regarding the patient with a QRS of 140 ms and erratic control of atrial fibrillation (patient 4), it is possible that at follow-up she will require a change to cardiac resynchronization therapy (provided the clinical profile indicates and allows this). With this system, such a change would not be feasible and could even hamper implantation of new electro-catheters in the right ventricle.

In light of these points, this seems to be an interesting and novel pacing system, but with some limitations, especially for patients who are in sinus rhythm or who require a change to cardiac resynchronization at follow-up.

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