Vaccination in Patients With Heart Disease. How Long Should We Wait? Response

Vacunación del paciente cardiópata. ¿Hasta cuándo esperar? Respuesta

To the Editor,

We read with interest the letter by Barrios and Escobar responding to our editorial, titled "Vaccination in Heart Failure: An Approach to Improve Outcomes".[1] We would like to clarify that our editorial focused exclusively on the impact of anti-influenza and/or antipneumococcal vaccination in patients with already established heart failure (HF) rather than those without a history of HF. It is rational to assume that, if respiratory infections are an important cause of HF hospitalization, preventing such infections would prevent HF patients from frequent readmissions and worsening disease. In agreement with this assumption, large-scale, observational studies or population-based registries have reported a reduction in hospitalization rate of vaccinated HF patients.[2,3] On the other hand, limited data indicate that anti-influenza and antipneumococcal vaccination may not further improve clinical outcomes after discharge of HF patients[4] or their annual efficacy may be limited only during the "flu seasons".[5] Notably, international guidelines have recommended anti-influenza and antipneumococcal vaccination in HF population based on either level of evidence IIb or on self-care skills or education plans.[1] Thus, there are data favoring immunization against influenza and pneumococcal viruses as a cost-effective, preventive measure in the HF population. However, those data are not strong enough to allow firm conclusions. We need more evidence, derived from studies properly designed for HF populations, balancing the risk-benefit ratio and not being extrapolated from general community or "heart disease" patients. Worldwide, the vaccination rate remains low and only evidence-based data will encourage the endorsement of international vaccination programs in HF therapeutic strategies.

CONFLICTS OF INTEREST

J. Parissis received honoraria for lectures from Pfizer.

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In-hospital Mortality Due to Acute Myocardial Infarction in the Canary Islands

Mortalidad hospitalaria por infarto agudo de miocardio en Canarias

To the Editor,

We have read carefully and with special interest the article by Mate Redondo et al.[1] published in *Revista Española de Cardiología* on the in-hospital mortality of acute myocardial infarction in the Canary Islands. In relation to this article, we would like to make some comments. As noted by the authors, cardiovascular mortality in the Canary Islands is one of the highest in Spain. However, from our point of view, even more worrying is the slight incremental trend (27.08%) vs previous years.[2–4] This tendency is the opposite of what is seen on a national scale.

Probably at least partly due to the origin and characteristics of the data, the study by Mate Redondo et al.[1] did not describe variables such as the characteristics of the hospital and the department in charge of the treatment, as well as whether revascularization therapy was applied or not, the type of revascularization, and the delay until treatment. These factors markedly affect patient prognosis. The RECALCAR trial[5] showed that hospital characteristics, treatment in a cardiology unit, and percutaneous coronary intervention are associated with the in-hospital survival of patients with acute myocardial infarction.

Due to the geographical peculiarities of the Canarian archipelago, the management of acute coronary syndrome and access to revascularization therapies differ considerably among islands, particularly between capital and noncapital cities. During the study period of the article by Mate Redondo et al.,[1] primary angioplasty was not systematically performed in the archipelago for ST-segment elevation acute myocardial infarction (STEMI), given that the Canarian Infarction Code (CODICAN) was only implemented in July 2018. This delay could be related to the excess mortality due to acute myocardial infarction observed in the Canary Islands. Several studies have shown a significant reduction in STEMI mortality and have improved prognosis after the establishment of care networks for its management.[6,7]

In fact, in the Canary Islands, the rates of poor dietary patterns, obesity, and diabetes mellitus are several percentage points higher than the Spanish average, with a consequent higher incidence of cardiovascular disease. These findings are also confirmed in the Acute Coronary Syndrome Registry, promoted by the Canarian Society of Cardiology prospectively in several hospitals of the autonomous community from 2015 to 2016, which included more than 500 patients. According to the data from this registry, the

Canarian diabetic population had higher mortality in the whole patient sample (ST-segment elevation and non–ST-segment elevation infarctions): 8.3% of in-hospital mortality in the diabetic population vs 3.5% in the nondiabetic population ($P = .021$). Patients who received mechanical revascularization (primary, delayed, or rescue) had lower mortality vs nonrevascularized patients (7.1% vs 3.3%, $P = .037$). This difference was even more pronounced upon analysis of the STEMI population because those who did not receive primary revascularization had higher mortality (17.9% vs 4.5%, $P = .002$), whether diabetic or not. However, patients with STEMI who were diabetic showed slightly but nonsignificantly higher mortality vs nondiabetics (12.5% vs 6%, $P = .055$).[8]

Regardless of the implementation of health policies aimed at the primary prevention of cardiovascular disease through lifestyle modifications and control of risk factors, particularly diabetes, a new analysis would be appropriate to determine the changes wrought in the Canarian population by implementation of a "Canarian infarction code".

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In-hospital Mortality Due to Acute Myocardial Infarction in the Canary Islands. Response

Mortalidad hospitalaria por infarto agudo de miocardio en Canarias. Respuesta

To the Editor,

We appreciate the kind interest shown by Martín Cabeza et al. in our article.[1] Mortality rates due to cardiac ischemia have exhibited a downward trend during the last 4 decades in the Canary Islands and in Spain as a whole (Figure 1), although the decline in the Canary Islands stopped in 2010.[2] Accordingly, the mortality ratio of the Canary Islands to Spain has since increased, reaching almost significant values in 2016: men, 1.33 (95% confidence interval, 0.93-1.93); women, 1.68 (95% confidence interval, 0.96-3.02). This mortality rate is mainly influenced by the living conditions of the population, with the health system a further determinant.

However, the focus of our article was not the mortality of the general population, but that of patients hospitalized for acute myocardial infarction during the years 2007 to 2014. These data represent in-hospital mortality, which is closely related to health care quality. This rate was adjusted for the main risk factors and revealed large inequalities among the different regions. Therefore, we stress that care processes should be reviewed by those responsible for the health system,[1] particularly in the communities with the worst results: the Canary Islands, Andalusia, Aragon, the Valencian Community, and Extremadura.

In the Canary Islands, factors that should be analyzed include the time of transfer from regional hospitals (smaller islands of the archipelago) to third-level centers (capital islands) for the performance of primary angioplasty. We agree with our correspondents and have said before that the excess hospital mortality may be related to the late implementation of the Canarian Infarction Code. If so, the coming years should show a marked improvement in the mortality of patients admitted for acute

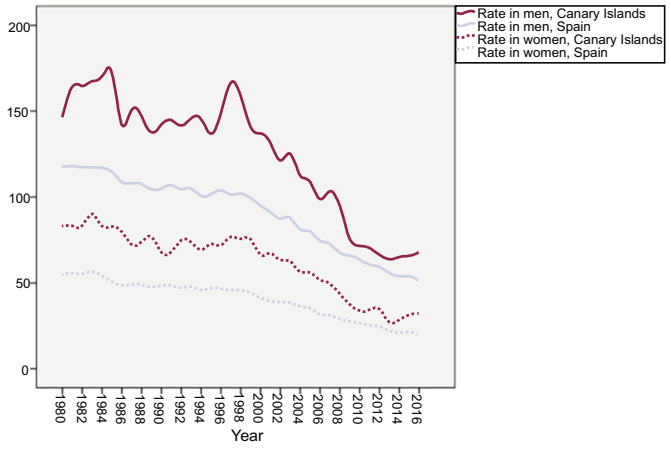

Figure 1. Changes over time in deaths due to cardiac ischemia in the Canary Islands and Spain. Rates per 100 000 population, adjusted by age.