

## Letters to the Editor

**Predictors of Clinical Outcomes in Patients With Stable Coronary Artery Disease****Predictores de eventos clínicos en pacientes con enfermedad coronaria estable****To the Editor,**

We read the article by Panoulas et al.<sup>1</sup> with great interest, in which the authors reported the similar 1-year clinical outcomes with 'Overlapping Bioresorbable Scaffolds' and 'New Generation Everolimus-eluting Stents'. The investigators should be congratulated on this interesting study. Nevertheless, we would like to make some points in addition to the findings of the present article. Although percutaneous coronary intervention (PCI) is one of the most important treatments in stable coronary artery disease (CAD), the COURAGE<sup>2</sup> investigators demonstrated that PCI did not reduce the risk of death, myocardial infarction, or other major cardiovascular events when added to optimal medical therapy in patients with stable CAD. Therefore, optimal medical therapy remains the key point in the treatment of stable CAD regardless of PCI and stent type. In this regard, angiographic success and clinical outcomes should be considered as different topics. Bioresorbable scaffolds and everolimus-eluting stents may have similar angiographic and procedural success. However, when evaluating clinical outcomes, optimal medical therapy including statins, beta-blockers and angiotensin converting enzyme inhibitors should be taken into consideration beyond revascularization and antiplatelet therapy. In the present study by Panoulas et al.,<sup>1</sup> there are no clear data on treatment with optimal medical therapy except antiplatelets. Significant differences in the treatment of these medications may affect prognosis and clinical outcomes independently of PCI and the stent types used.

In conclusion, despite similar angiographic and procedural success, prognostic comparison of bioresorbable scaffolds and

everolimus-eluting stents requires more comprehensive evaluation. Since optimal medical therapy reduces adverse outcomes independently of PCI in patients with stable CAD, it should be proven that both groups were treated equally with optimal medical therapy including statins, beta-blockers, and angiotensin-converting enzyme inhibitors.

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Available online 21 October 2016

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1885-5857/

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**Predictors of Clinical Outcomes in Patients With Stable Coronary Artery Disease. Response****Predictores de eventos clínicos en pacientes con enfermedad coronaria estable. Respuesta****To the Editor,**

We would like to commend Drs Eyuboglu and Kucuk for their thought-provoking letter. We entirely agree that medical therapy is of paramount importance in the treatment of patients with stable angina and, indeed, all of the patients in our study,<sup>1</sup> irrespective of type of stent/scaffold implanted, were treated with optimal medical therapy (OMT) consisting of dual antiplatelet therapy, a high-dose statin, beta-blocker, and an angiotensin

converting-enzyme inhibitor or angiotensin receptor blocker, unless contraindicated. Other anti-anginal agents, such as long-acting nitrates, nicorandil, ranolazine, and calcium channel blockers, were considered when residual small vessel or diffuse disease were present.

We should, however, stress that the field of coronary intervention has advanced considerably from the times of the COURAGE trial.<sup>2</sup>

Patients selected in the COURAGE trial were mainly those with intermediate stenosis (70% or more) and myocardial ischemia (exercise or pharmacologic vasodilator stress) or at least 80% stenosis with classic angina. Patients with very tight stenoses, who derive the most benefit from percutaneous coronary intervention (PCI),<sup>3</sup> were most likely excluded on the basis of a markedly positive stress test, one of the exclusion criteria. Of interest, drug-eluting

stents, the new generation of which has been associated with improved survival,<sup>4</sup> were only used in 2.7% of patients in the PCI group because they were approved in the last 6 months of the trial.

In current times, most coronary interventional cardiologists treat intermediate coronary lesions in stable angina patients only if they can prove that they are hemodynamically significant, either with an invasive (pressure wire) or a noninvasive functional test. This practice partially stems from the results of the FAME II trial,<sup>5</sup> which revealed a significant reduction in urgent revascularization in the PCI (4%) vs the OMT group (16.3%) even though the investigators found no significant differences in all-cause mortality (PCI vs OMT: 1.3% vs 1.8%, 0.58) or myocardial infarction (5.8% vs 6.8%,  $P < .56$ ). Furthermore, most centers use contemporary new generation drug-eluting stents; in a network meta-analysis of 93 553 patients in 100 randomized controlled trials,<sup>4</sup> these stents were associated with reduced mortality (everolimus: 0.75, 0.59 to 0.96; zotarolimus [Resolute]: 0.65, 0.42-1.00) compared with medical therapy alone. Of note, this mortality benefit was not seen in patients treated with plain balloon angioplasty (0.85, 0.68-1.04), bare metal stents (0.92, 0.79-1.05), mainly used in COURAGE, or early generation drug-eluting stents (paclitaxel: 0.92, 0.75-1.12; sirolimus: 0.91, 0.75-1.10; zotarolimus [Endeavor]: 0.88, 0.69-1.10).

In summary, we agree that in stable angina patients the verdict is still out as to whether PCI adds a mortality benefit over and above OMT; however, there seem to be some signs that this may be the case with newer stent platforms. Our study suggests that patients on OMT treated with overlapping first generation bioresorbable scaffolds have similar 1-year outcomes to those treated with overlapping new generation everolimus-eluting stents, despite the latter being the leading force in coronary intervention.

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Available online 27 October 2016

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## Why Not Use Existing Knowledge: Bayesian Statistics



### Por qué no utilizar el conocimiento previo: la estadística bayesiana

#### To the Editor,

We read with interest the article by Aranceta-Bartrina et al.,<sup>1</sup> whose objective was “to describe the prevalences of overall obesity and abdominal obesity in a representative sample of the Spanish population”.

We presume that the authors' true objective was to describe not the prevalence of obesity in the sample, but rather the true prevalence of obesity in the Spanish population. To do so, they selected a sample of 3966 individuals, ensuring it was representative, and then used it to calculate the percentage of individuals with obesity. To extrapolate these results to the Spanish population, they calculated 95% confidence intervals.

Frequentist statistics based on significance tests, confidence intervals, and hypothesis testing are widely used nowadays. The main advantages of this approach are its simplicity and easy reproducibility, as many of the calculations can be done manually. The main disadvantage is that it does not provide a rational answer to clinical questions. The original question, “What is the true prevalence of obesity in the Spanish population?” cannot be answered intelligibly using this type of statistics.

The authors<sup>1</sup> state that the rate of obesity was 21.6% (95% confidence interval, 19.0%-24.2%). To understand this interval, one must imagine taking repeated samples using the same model, such that in 95% of those samples, the intervals include the true population value.<sup>2</sup> Although difficult to understand, this does not mean that there is a 95% probability that the prevalence of obesity in the Spanish population is between 19% and 24.2%; therefore, it does not address the original question.

Bayesian statistics are an alternative to frequentist statistics. The Bayesian approach is more complex and may require Markov chain Monte Carlo simulations,<sup>2,3</sup> but it has the advantage of intuitively answering questions such as this one and it takes existing knowledge into account. Instead of “confidence intervals”, it uses “credible intervals”. The credible interval is the range in which there is a 95% probability of finding, for example, the true population value.

This type of statistics is based on Bayes theorem. It uses prior probability, along with experience or observation, to calculate the *a posteriori* probability. This means that each new study is seen not as separate or independent from existing knowledge, but as adding new information and contributing to the creation of new knowledge; this then serves as a starting point for subsequent studies.<sup>2</sup>

Reading this article, one is reminded of the 2012 publication by Gutiérrez-Fisac et al.,<sup>4</sup> whose objective was also to describe the prevalence of obesity in Spain by studying 12 883 individuals. According to the data provided, the prevalence of obesity in