

## Letters to the Editor

**Future Demand for Interventional Procedures in Structural Heart Disease. Is It Wise to Perform TAVI Only in Centers With On-site Cardiac Surgery?*****Demanda futura de procedimientos intervencionistas en cardiopatía estructural. ¿Es sensato realizar TAVI solo en centros con cirugía cardiaca?*****To the Editor,**

We have read with great interest the article by Morís et al.<sup>1</sup> on the future of transcatheter aortic valve implantation (TAVI) and we would like to congratulate them for bringing to light a problem that will soon become exponential. As the authors report, since its inception in 2007, more than 250 000 TAVI procedures have been performed worldwide, of which 70 000 were performed last year. By 2025, there will be 280 000 such procedures per year. Similarly, in the United States, 25 000 TAVI procedures were performed in 2015, and this figure will reach 100 000 procedures by 2020.<sup>2</sup> European estimates have been largely exceeded, especially in high-income countries such as Germany, Switzerland, the Netherlands, and Austria.<sup>3</sup> We must emphasize that these figures are almost exclusively drawn from data on inoperable or very high risk patients. Recently, favorable results have been obtained in intermediate risk patients; thus, if the next guidelines include this indication, the most aggressive predictions may fall very short of reality.

To further aggravate the problem, there is major concern about the progressive increase in the absolute and relative numbers of the elderly population. The use of TAVI in inoperable patients has already been described as a first tsunami. The second tsunami will probably begin in 2020, when the population born between 1946 and 1964 (the baby-boomers) reaches old age.<sup>2</sup> In the same line, the Marrugat<sup>4</sup> group estimated that the incidence of acute coronary syndrome will increase by 40% between 2005 and 2049. Although the curve will be practically flat in both men and women younger than 75 years, there will be a 100% increase in those older than 75 years, rising from 55 000 cases per year in 2005 in both sexes to 110 000 new cases per year by the end of this period. This prediction is very similar to that concerning aortic stenosis, because it reflects the absolute and relative increase of the elderly population, who will also show a growth in the proportion of inoperable patients due to the progressive rise in the average age of survival.

In recent weeks, there has been controversy on the issue of performing TAVI only in hospitals with on-site cardiac surgery. To date, such programs have been closed in 2 Spanish autonomous communities. These hospitals had good results,<sup>5</sup> which were similar to those of the 17 919 TAVI procedures performed in Germany between 2013 and 2014 reported in the AQUA registry.<sup>6</sup> The incidence of complications was not statistically different between the 75 hospitals with on-site cardiac surgery and the 22 hospitals without on-site cardiac surgery. Each patient was assessed by the cardiac team.

In 2014, 1062 TAVI procedures were performed in Spain (population 46 million), whereas 13 278 procedures were

performed in Germany (population 81 million).<sup>7</sup> Although it is unlikely that we will reach the rate of TAVI procedures performed in Germany, it is clear that we will see a striking increase in the number of these procedures in Spain and that they will have to coexist with the percutaneous treatment of the mitral valve and atrial appendage. Although the latter procedures will be less frequent than TAVI, they will also consume resources and operating room time in larger hospitals.

Therefore, we believe that prohibiting TAVI in hospitals without on-site cardiac surgery is unwise and strategically inappropriate. It would probably be much more appropriate to be able to intervene in patients at very high surgical risk in these hospitals, as those with on-site cardiac surgery will be facing their own challenges due to the expected increase in elderly patients. This situation will be made yet more difficult if the indication for intermediate risk patients is approved in the guidelines, because these patients will have to be treated in such hospitals if the same policy is applied. In the face of an approaching tsunami, the most unwise course of action is to sit and wait for it to happen, especially when we have been warned that it is approaching.

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