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Editorial

In search of excellence in transcatheter and surgical aortic valve implantation

A la búsqueda de la excelencia en el implante percutáneo de la válvula aórtica... y también en el quirúrgico

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The management of symptomatic severe aortic stenosis is based on surgical aortic valve replacement (SAVR) or transcatheter aortic valve implantation (TAVI).

In an interesting work recently published on *REC: Interventional Cardiology*, Núñez-Gil et al.[1] studied how the type of hospital and volume of cases impacted the results obtained with both techniques. This was a retrospective analysis with data gathered from administrative sources with the limitations associated with studies based on the Minimum Basic Dataset. Nonetheless, it leaves important messages that should be discussed.

In line with other publications,[2] they describe the correlation between casuistry, case volume, and results in terms of mortality and risk-adjusted hospital stays. This article is original and important because in Spain, no study like this has ever been conducted on the association between the volume of TAVIs performed and results.

Also, they confirm the existence of a favorable correlation between better TAVI results and in-hospital «structural» variables like the availability of cardiac surgery intensive care units (CICU). The authors stress the importance behind the finding that there is a correlation between the presence of a CICU and a lower mortality rate with both techniques. However, this impact is greater with TAVI compared to SAVR. Actually, having defined protocols and staff trained in the rapid detection and management of periprocedural complications like vascular access hemorrhages, atrioventricular blocks, renal failure, etc. would explain this correlation.

Data from this study show that the risk-adjusted in-hospital mortality rate is lower in large volume centers and high-level hospitals («type 4»). It is logical to think that large volume PCI-capable centers with all their resources and wide experience in coronary and structural heart procedures will have good results. Performing a high number of procedures reduces procedural complications. However, achieving a solid learning curve first is essential to have good clinical results and increase the cost-effectiveness of the procedures. However, nowadays, the learning curve is shorter with the new devices available.

On the other hand, they found that large volume centers that perform TAVIs and also quite a few SAVRs have a lower mortality rate with percutaneous procedures. The large casuistry with both procedures and the extensive experience of interventional cardiologists and surgeons improves the results. This may be explained by the benefits derived from the mutual collaboration between interventional cardiologists and surgeons regarding the selection of the most appropriate cases for each technique or because surgeons who perform more surgeries have a greater expertise to solve eventual TAVI complications. Still, the need for surgery today is very low.[3,4] It may also be suggested that these hospitals have a greater surgical activity because they receive a large number of patients with severe aortic stenosis (some treated with SAVR and others with TAVI).

Hospitals that perform large volumes of TAVIs but very few surgeries also have good results. Therefore, it does not seem to be a factor directly associated with surgical activity *per se*, but rather with the experience of interventional cardiologists and the writing of proper protocols before, during, and after the procedure.

Consistent with all this, the authors also say that the availability of a CICU is important in the results of TAVI because it guarantees proper treatment after the procedure.

The importance of this article is undeniable, and its findings are very interesting. However, its conclusions should be interpreted with caution. On the one hand, there is too much heterogeneity among the hospitals studied. On the other hand, there may be biases and factors that still remain unstudied. Some of the possible biases may be that patients treated with TAVI in type 3 hospitals without CICU capabilities may have higher comorbidity rates. Also, there are variables not included in the study that may impact the results like the analysis of the valves used or the timeframe of the process analyzed in each hospital, which could also impact the results differently depending on the timing of the learning curve.

The correlation between volume and results has already been proven in other studies.[5] However, it seems to decrease in time with more experience, better hospital processes, and more advanced technologies.

Also, there are important additional questions that should be taken into consideration like the analysis of other complications that were not included in the study (eg, need for pacemaker, onset of renal failure, etc.).

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Over 4000 annual TAVIs are performed in Spain every year in nearly 110 hospitals by interventional cardiologists who, in collaboration with clinical cardiologists, imaging specialists, and other health professionals—geriatrician, anesthesiologists, intensivists, surgeons, radiologists—achieve excellent results that have been improving throughout the years.

As a consequence of these and other data published, TAVIs should only be performed after proper training, in large enough numbers, and with good results.[6,7]

In conclusion, the article of Núñez-Gil et al.[1] is an interesting study that shows the commitment of interventional cardiologists to optimize the results of TAVI. A commitment that is already a reality in many Spanish cath labs.

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CONFLICTS OF INTEREST

None reported.

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