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MORE EVIDENCE FAVORING BIOPROSTHESES FOR PATIENTS OLDER THAN 55 YEARS IN AORTIC VALVE REPLACEMENT

To the Editor:

I read with great interest the recently published meta-analysis of Diaz and colleagues,¹ which establishes that relative to biologic valves, mechanical prostheses provide a survival benefit for patients aged 50 to 70 years who undergo aortic valve replacement (4886 patients from 5 studies).

I believe that this study has a number of important limitations that should be highlighted. The first one is due to its design. The protocol that was published in the PROSPERO database (registry number CRD42017076611) established as inclusion criteria only propensity score-matched (PSM) studies or randomized controlled trials. This design prevented the inclusion of the study by Goldstone and associates,² the largest study published to date (9942 patients), because confounding variables were controlled by inverse probability-weighted cohorts. This work showed no differences in survival for patients older than 55 years. Likewise, age subgroup analysis were not carried out with this age cutoff in the meta-analysis.

It is important to note that the use of propensity score matching can only control for previously measured and registered variables. Unmeasured or unknown factors thus may still be different between groups after matching. These confounding factors could potentially introduce bias favoring the mechanical group, because surgeons tended to implant bioprostheses in patients younger than 65 years

only if those patients are considered frail candidates (those with a reduced life expectancy, high comorbidities, or contraindication for anticoagulation) or in cases of patient preference.

Importantly, there must be factors that influence the risk of structural valve degeneration or thrombosis, or that affect the control of anticoagulation. In this sense, the percentage of international normalized ratio self-monitoring (which reduces international normalized ratio variability and clinical events),³ the type and size of implanted prosthesis, or a diet rich in vegetables, such as the Mediterranean diet, thus are factors that have not yet been properly studied. I therefore believe that knowing the real-world results in different regions or countries provides more knowledge than a weighted average of all the studies, because the environment exerts an influence impossible to quantify.

Recently, my group has led the Andalousian Aortic Valve Multicentric (ANDALVALVE) Study,⁴ a multicentric retrospective study including all subjects aged 50 to 65 years who underwent primary isolated aortic valve replacement for severe aortic stenosis at all hospitals within Andalusia, Spain (population, 8,500,000 people) between 2000 and 2015. A total of 1443 patients were enrolled. After propensity score matching, our study showed similar long-term survivals for patients older than 55 years. A National extension comprising 30 hospitals in Spain is underway (SPAVALVE, [ClinicalTrials.gov](https://clinicaltrials.gov) NCT03595423)).

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