

EDITORIAL COMMENT

Local Anesthesia-Conscious Sedation

The Contemporary Gold Standard for Transcatheter Aortic Valve Replacement*



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To date, more than 300,000 transcatheter aortic valve replacement (TAVR) procedures have been performed worldwide. This rapid adoption reflects the enthusiasm surrounding that breakthrough therapy (1). The standardization of TAVR procedures makes them more reproducible and predictable outcome-wise. General anesthesia (GA) has been mainly performed for transesophageal echocardiography guidance. This imaging modality may be useful to guide transcatheter heart valves (THV) deployment, appreciate the degree of residual aortic regurgitation, and quickly identify life-threatening complications such as annular rupture or cardiac tamponade. However, in contemporary practice, the technological refinements of second-generation THV enable 30-day mortality rates of approximately 1% to 2%, major vascular complications and moderate-severe residual aortic regurgitation rates under 10%, and extremely rare cases of tamponade or annular rupture (2-4). Thus, the systematic use of transesophageal echocardiography is questionable (5). With the expansion of the indications for TAVR, physicians and hospitals are facing new challenges. How do we treat more TAVR patients while guarding against increased health care costs and protecting against adverse clinical events? Several levers can be activated to achieve that goal. Shortening procedure duration and hospital stay, alongside early discharge, remain central among the possibilities. We have seen in recent years the

development of various strategies aimed at simplifying or streamlining TAVR procedures, at least transfemoral procedures, which represent more than 90% of the cases in most institutions. Indeed, local anesthesia-conscious sedation (LACS), percutaneous access with closure devices, direct THV implantation without balloon valvuloplasty, and minimizing cases of left ventricle pacing, are strategies recently adopted by many heart teams. By combining these various time-saving strategies, up to 7 TAVR procedures can be performed daily in some high-volume institutions. Simple evidence to support TAVR under LACS is the first-in man case that was performed in this manner over 15 years ago (6). The pioneering team in Rouen promoted that technique and was the first to demonstrate the safety of this LACS approach for transfemoral TAVR, legitimizing the expansion of this strategy (7). Another small study demonstrated that GA could be associated with an increased risk of post-operative delirium and subsequent late death (8). The need for a surgical cut down for femoral access has been opposed as an argument for GA, but it can be performed without precluding LACS use (9). The theoretical benefits of LACS include a reduction of intraoperative instability, shorter procedures, better recovery, and shorter hospital stays. However, data on the real impact of LACS are conflicting and mainly represent the early experience of some centers (10,11).

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In this issue of *JACC: Cardiovascular Interventions*, Husser et al. (12) present a very comprehensive and contemporary substudy from the German Aortic Valve Registry. Two large cohorts of propensity-matched patients were compared on the basis of the type of anesthesia. LACS was associated with shorter procedural and fluoroscopy times, lower rates of

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in-hospital complications, shorter intensive care unit and hospital stays, with lower 30-day mortality. There was no difference in rates of moderate-severe aortic regurgitation between LACS and GA patients. No difference in 1-year mortality was observed between both groups, except for women, favoring LACS. As such, we have very positive signals provided by this study to support the use of LACS as the first-line option. An important point is the rarity of bailout conversion from LACS to GA in contemporary TAVR practice. Going forward, fewer and fewer patients will be suited for GA, and it may be up

to each heart team to identify the type of patient needing GA. The authors are to be congratulated for this important study that should contribute to the optimization of TAVR programs and patients' outcomes. LACS should become the gold standard for contemporary transfemoral TAVR procedures.

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