We would like to thank Rychlik et al. [1] for their interest regarding our comparative study about postoperative ipsilateral shoulder pain treatment and prevention [2]. The idea of injecting the periphrenic fat pad prior to resection and handling of the hilium seems to be very interesting to us, and probably will lead to a better control of postthoracotomy ipsilateral shoulder pain as has been well documented with the use preemptive analgesia through peridural catheter in thoracic (and others) surgeries [3, 4].

In contrast, even though we agree with Rychlik et al. [1] that levobupivacaine is a theoretically better agent for phrenic nerve block (longer half-time live and more powerful effect) than lidocaïne, we would like to reflect our concerns about its clinical use because of its potential cardiotoxicity in case of systemic absorption that is something that could occur with its use in a well-vascularized area as the periphrenic fat pad. Regarding this matter, we believe that ropivacaine would be a better option than lidocaïne or levobupivacaine because it’s a long-lasting, powerful anaesthetic with less cardiac toxicity [5], and it has proved safety in a clinical setting for phrenic nerve block [6], unfortunately, we have no experience with this anaesthetic.

Finally, we concur that further research is necessary to refine the technique of phrenic nerve infiltration for ipsilateral shoulder pain, but we strongly believe that actually there is enough evidence to recommend the widespread of the technique all over the thoracic surgery units.

REFERENCES


LETTER TO THE EDITOR

Sizing the annulus for transcatheter aortic valve implantation: more than a simple measure?

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Accurate preoperative assessment of the aortic annulus dimension is crucial for the success of transcatheter aortic valve implantation (TAVI). All the available imaging modalities, however, have some weak points, and the ‘gold standard’ to be used is still under debate. In this context, the recent work by Dr Blanke and coworkers is a commendable attempt to develop a standardized, easy to reproduce method for the identification and measurement of the aortic annulus [1, 2].

A very interesting finding of this study is the close correlation found between the preoperative cross-sectional area (CSA) of the virtual ring passing through the nadir of the three aortic cusps and the postoperative CSA. This observation would suggest that preoperative determination of the CSA could help in predicting the final form and size of the aortic annulus in most TAVI patients [1]. However, the behaviour of the aortic root and aortic annulus is not always predictable based on the preoperative exams [3]. This is partly due to intrinsic anatomic properties of the aortic root—the ‘virtual ring’ is largely inhomogeneous, coursing through the muscular septum, the membranous septum and the mitro-aortic curtain. Moreover, leaflet and annular calcifications are often asymmetrical, adding further complexity to any attempt to predict the final shape of the prosthetic valve, the displacement of the native calcified leaflets and the sealing of the annulus around the prosthesis. A very good exemplification of this problem is given by the bicuspid aortic valve, which is usually ovoidal and heavily calcified, and may fail to adapt to the circular transcatheter valve [4].

For this reason, we have developed a simple method to analyse the reaction of the aortic root to the balloon inflation, and to obtain a dynamic measure of the CSA. In the uncertain
cases (‘borderline’ annulus, important discrepancy between TEE and CT measurements, massive and/or eccentric calcifications), we proceed to a ‘calibrated’ balloon valvuloplasty. A conventional valvuloplasty balloon (Cristal Balloon, Balt, Montmorency, France) is inflated with a diluted contrast agent through a three-way stopcock. When the waist generated on the balloon profile by the aortic annulus is stretched, the stopcock is closed and an aortography is performed to exclude the presence of aortic regurgitation. The amount of contrast agent used to inflate the balloon is carefully recorded, and the balloon is deflated and withdrawn. On the bench, the balloon is inflated again to the same volume, and is then sized with a sizing plate (Amplatz sizing plate, AGA Medical Italia, Milan, Italy). This simple manoeuvre allows us to accurately measure the aortic annulus, to estimate the risk of postoperative paraprosthetic leakage and to check the relationships between the dislocated aortic valve leaflets and the coronary arteries ostia. In our experience, this procedure has led to a change in the size of the percutaneous prosthesis in three patients, and to the conversion to transapical approach in two patients needing a 29 mm prosthesis.

In conclusion, we believe that the CT protocol described by Blanke could greatly enhance our ability to evaluate the anatomy of the aortic root preoperatively. In doubtful cases, however, calibrated balloon valvuloplasty could add fundamental dynamic information, allowing us to ‘feel’ the aortic annulus while measuring it.

REFERENCES


LETTER TO THE EDITOR RESPONSE

Reply to Cerillo et al.

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We appreciate Dr Cerillo’s comments [1] on our work [2] and agree with most of the conclusions. Up to now, no ‘gold standard’ for sizing the aortic annulus prior to transcatheter aortic valve implantation has been defined. The approach presented by our working group is now fully implemented in our working routine and was also, independently reported by other European centres [3]. In addition to commenting on our work, Cerillo et al. report an invasive attempt of annulus sizing by means of a conventional valvuloplasty balloon with intracorporal and extracorporal inflation. Extracorporal inflation with identical balloon filling should allow for diameter measurements. Cerillo et al. recommend this approach for doubtful cases. However, this approach, especially its accuracy, has to be evaluated in a formal study. If the results demonstrate reliability of this method, this approach may also be conceivable for patients with renal insufficiency where contrast media exposition with computed tomography is clearly unfavourable. Nevertheless, interventionists have to be aware of the clinical relevant aortic insufficiency after valvuloplasty, calling for immediate valve implantation. It is not justified exposing the patient to the additional risk of a prolonged period of severe aortic insufficiency after ballooning whenever accurate measurements can be made well in advance. A CT-based assessment is mandatory for most patients in the preoperative work-up for any TAVI procedure.

In summary, we thank Dr Cerillo et al. for their valuable recommendation which might be of great value in selected patients. However, we still believe that the CT-based preoperative assessment is the most reliable routine diagnostic feature for annulus sizing and operation planning.

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