LETTER TO THE EDITOR

Confusion surrounding the Cox-maze procedure: a lack of standardization in daily practice

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I have carefully read the article by Mehaffey et al.[1], which addresses the various reasons why the surgical ablation (SA) for atrial fibrillation (AF) is currently underused during mitral valve surgery. The authors must be congratulated for this interesting work. However, beyond these true barriers that prevent the implementation of the concomitant SA for AF in daily practice, we must analyze the true causes that have given rise to this situation.

Firstly, we must recognize that the only procedure that has proven to be highly effective in eliminating AF in the long term is the Cox-maze procedure (CMP), which remains as the gold standard for SA of AF. The CMP has been painstakingly described by Dr. Cox as a full bi-atrial lesion pattern procedure. All lesser procedures arising from the original CMP are associated with high failure rates after operation and should be avoided [2].

Secondly, hitherto, the only alternative energy sources that have proven to be effective in achieving full transmurailty are the bipolar radiofrequency ablation and cryothermia [3]. Other ablation energy sources than these should be avoided when performing the Cox-maze IV procedure, either by conventional sternotomy or by using mini-invasive cardiac surgery, as endocardial Cox-maze IV procedure.

Thirdly, as mini-invasive cardiac surgery, the only procedure that has proven to get acceptable results in the long term is the endocardial Cox-maze IV procedure. However, it still remains as an "on-pump" procedure. Epicardial ablation (total thoracoscopic approach) and the hybrid procedure, although they are "off-pump" procedures, they still leave much to be desired regarding the freedom from AF at 12-months follow-up [4].

Fourthly, we have to recognize that there is still a lack of a true standardization in surgical technique as well as in the way of choosing and using the alternative energy sources for the CMP when it comes to put into the practice all the above-mentioned concepts.

Fifthly, all too often, various abridged "Maze" procedure adaptations are incorrectly reckoned in meta-analyzes as "Cox-maze". They are not true CMP. Given the limited efficacy of all these lesser procedures, the final results in these meta-analyzes should be carefully analyzed.

In the light of the foregoing, it is perfectly understandable the crisis that still manages to drag us down into a sea of confusion. A shift should take place regarding the philosophy to implementing the CMP. Mandatory actions for a more efficient utilization of the CMP have remained in the background, despite the monumental efforts by the experts in the 2017 Clinical Practice Guidelines for the SA of AF [5] as well as the expert consensus guidelines for SA in the treatment of AF [3].

The golden rule by which we should be able to improve the use of the CMP is to standardize the procedure under the precept of always using the full bi-atrial lesion pattern principle, by means of a combination of bipolar radiofrequency ablation and cryolesion (or cryolesion alone), as a Cox-maze IV procedure, either by performing full sternotomy or mini-invasive endocardial Cox-maze IV procedure.

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