Percutaneous mitral commissurotomy, mitral stenosis and atrial fibrillation: the good, the bad and the ugly

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LETTER TO THE EDITOR

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To the editor,

As the health-related burden of rheumatic heart disease (RHD) tends to decline worldwide, it remains a significant issue in many of the poorest regions of the world [1]. Atrial fibrillation (AF) is a common complication in these patients, observed in more than 20% of the patients with symptomatic RHD [2,3]. In the setting of mitral stenosis (MS), AF results from the progressive enlargement of the left atrium associated with chronic hemodynamic stress. It may also result from direct inflammatory and structural remodelling with fibrotic changes of the atrial myocardium and the atrial conduction system [4]. Owing to its high complication rate, AF is a major threat for patients with MS, which worsens the hemodynamic intolerance and is associated with stroke, peripheral embolism, heart failure, and death.

In this issue of the Journal, Liu et al. report the results of a meta-analysis of 15 studies aiming at comparing the effects of percutaneous mitral commissurotomy (PMC) in patients with AF and those in sinus rhythm [4]. In this study, PMC was associated with lesser improvement in mitral valve area (the primary end-point), higher rate of embolism, lower event-free survival, higher incidence of mitral valve replacement and redo PMC, and with higher mortality.

That AF is associated with more embolic events and that it negatively affects the prognosis are not unexpected findings. Furthermore, these data are in line with previous reports suggesting that pre-procedural AF is associated with poor long-term prognosis after PMC [6,7]. The effects of PMC on immediate post-procedural results are more controversial [7]. The lesser efficacy of PMC, with smaller post-procedural and long-term mitral valve areas, and the higher rate of redo mitral valve procedures observed by Liu et al. may appear intriguing. However, the association is not causation. There is no mechanistic reason to believe that PMC would be lesser effective in the presence of AF, all other things being equal. In the meta-analysis of Liu et al., the proportion of patients who had already - before the onset of AF – a guideline-directed indication for PMC is unknown. Importantly, patients with AF were older and had a higher Wilkins score than patients in sinus rhythm. This is consistent with the hypothesis that patients with AF have undergone PMC at a later stage of the disease, thereby explaining the lesser success rate of the procedure in these patients.

The most straightforward implication of these results is that when a patient with hemodynamically significant MS develops AF, the optimal timing for PMC may have been exceeded. There is, however, no evidence that patients with MS and AF should be denied PMC, even if permanent AF is included in the list of unfavourable characteristics for PMC by current ESC/EACTS Guidelines [8]. Favourable anatomical characteristics most likely prevail on the underlying rhythm for the decision to proceed to PMC in an individual patient, and current guidelines also mention that the procedure should be considered in asymptomatic patients with new-onset or paroxysmal AF (Class of recommendation IIa, level of evidence C) [8].

It is tempting to subscribe to the suggestion of Liu et al. that earlier treatment of patients with MS (i.e. before the development of AF) might improve outcomes. However, PMC in asymptomatic patients with severe MS may not necessarily reduce the subsequent incidence of cardiovascular events [9]. Therefore, it would be desirable to identify asymptomatic patients with sinus rhythm at high risk of developing AF. Age and atrial size are both independent predictors of AF [3]. Inflammatory biomarkers might also contribute to predicting the occurrence of AF, but this approach requires further validation [10]. There are also controversies regarding the use of long-term anticoagulation for patients with rheumatic MS in sinus rhythm and left atrial enlargement or spontaneous contrast on transesophageal echocardiography [11]. When AF occurs, PMC and anticoagulation are the most important measures. AF ablation might be more effective than antiarrhythmic drugs in maintaining sinus rhythm in patients with mitral valve disease requiring intervention [12], but the clinical benefit of AF intervention in the setting of MS is uncertain, and rhythm control strategies should not be considered without the mechanical treatment of hemodynamically significant MS.

Whereas there is still some uncertainty as to the optimal time to perform PMC, the main issue is that rheumatic disease is a disease of poverty. In the absence of an effective worldwide public health policy, not only fine-tuning of the optimal timing for intervention, but also primary prevention, early screening of RHD, and on-time management of its complications will, unfortunately, remain elusive goals.

Disclosure statement

No potential conflict of interest was reported by the authors.
References


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