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SCIENTIFIC EDITORIAL

Dedicated heart valve networks for improving the outcome of patients with valvular heart disease?

De l'intérêt de réseaux de soins « valve » dédiés pour améliorer le pronostic des patients porteurs de valvulopathies

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The prevalence of valvular heart disease (VHD) is increasing as the result of an ageing population. The most recent EuroHeart survey on VHD underlined an important gap between guidelines on the management of patients with VHD and real-life practice [1]. Several explanations may account for this discrepancy. VHD care is not considered as a cardiology subspecialty, although patients with complex or multiple VHD along with comorbid conditions need both clinical and pathophysiological VHD expertise, multimodality imaging and a global approach.

Abbreviations: CMR, Cardiac magnetic resonance; GP, General practitioner; HVC, Heart valve centre; HVN, Heart valve network; LV, Left ventricular; TAVR, Transcatheter aortic valve replacement; VHD, Valvular heart disease.

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The aim here is to underline the need for the development of dedicated heart valve networks (HVNs), where patients with VHD may be evaluated by a multidisciplinary heart valve team in a heart valve centre (HVC), as emphasized recently by the European Society of Cardiology [2,3], in coordination with the patient's general practitioner (GP) and referring cardiologist, to improve shared decision-making. This editorial will focus on the importance of HVNs to support better prevention, symptom assessment, multimodality imaging, VHD management, percutaneous interventional procedures, therapeutic education and post-operative follow-up; also, cooperation between heart valve teams is the cornerstone of multicenter clinical research into VHD.

Are symptoms related to VHD?

In patients with severe VHD, symptom onset often indicates the need for valvular intervention (class I); thorough interrogation of patients is therefore crucial, and should combine the longitudinal findings of both the GP and the referring cardiologist.

Symptom interpretation is difficult in older people or in those with comorbid conditions, such as chronic lung disease, but this can also be the case in highly trained patients, where peripheral vasculature and muscles may compensate the central haemodynamic impact of the VHD [4]. Exercise testing, exercise stress echocardiography and cardiopulmonary exercise testing in the HVC may help to elicit symptoms and determine the severity of the VHD [5–7]. Natriuretic peptide concentrations may be an interesting adjunct to the longitudinal functional follow-up.

Multimodality imaging in the HVC

Non-invasive and non-ionizing Doppler echocardiographic imaging is key in determining a diagnosis of VHD, its mechanisms and severity, and its effects on cardiac chambers and pulmonary circulation (Fig. 1). A strong knowledge of VHD pathophysiology is necessary to draw appropriate

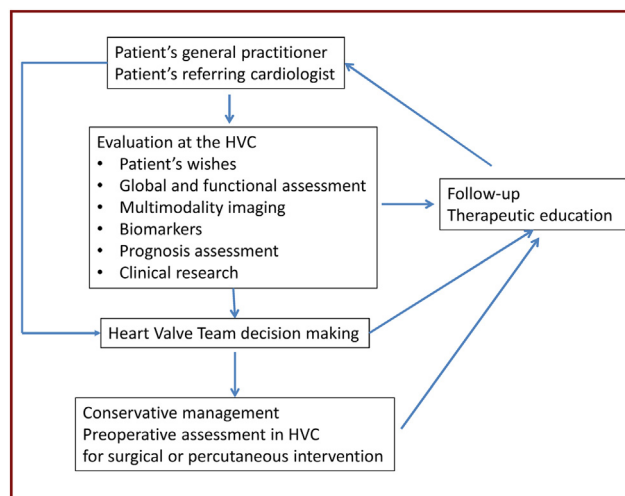


Figure 1. The heart valve clinic (HVC) in the heart valve network.

conclusions from Doppler echocardiographic findings; restrictive drug-induced VHD may be wrongly identified as rheumatic VHD if exposure to specific drugs is not considered [8]. Accurate assessment of left ventricular (LV) function is necessary, as specific LV dysfunction thresholds (LV ejection fraction < 50% in case of aortic regurgitation/aortic stenosis; LV ejection fraction < 60% in case of mitral regurgitation) are triggers for valvular intervention [9]. Three-dimensional echocardiography enables a reproducible assessment of LV function and volumes, with less intra- and interobserver variability, and allows the quantification of mitral regurgitation regurgitant fraction [10]. The routine use of speckle-tracking strain echocardiography in identifying subclinical LV dysfunction still needs validation in patients with VHD [11]. The systematic use of a non-image continuous Doppler probe may help to reduce the proportion of patients with paradoxical low-gradient aortic stenosis, and hence facilitate therapeutic decisions [12]. Assessment of the tricuspid valve and right ventricle is also particularly challenging, but is often overlooked by clinicians, as post-operative tricuspid regurgitation remains highly prevalent and associated with poor outcome [13]. Low-dose dobutamine challenge is of critical importance to differentiate patients with LV systolic dysfunction and true severe aortic stenosis who need valvular intervention from those who need conservative heart failure management. Echocardiographic examinations should be standardized and saved on a picture archiving and communication system (PACS), with dedicated workstations for reviewing [14], to double check reliable changes in echocardiographic variables, including aortic diameters [15].

Transoesophageal echocardiography is often needed to complete transthoracic echocardiography evaluation in complex VHD. Three-dimensional transoesophageal echocardiography accurately identifies the location of valvular lesions, such as focal valvular prolapses or commissural fusions in mitral stenosis, and assesses the anatomical severity of valvular stenosis.

Cardiac magnetic resonance (CMR) imaging offers a complementary means of estimating VHD severity, although the lack of studies with prognostic assessment is a limitation.

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