Three-Dimensional Echocardiography in Carcinoid Heart Disease

Ecocardiografía tridimensional en la cardiopatía carcinoide

Dear Editor,

A 67-year-old man had presented 7 months earlier with complaints of flushing, diarrhea and tiredness. Etiologic investigation diagnosed metastatic midgut neuroendocrine carcinoid tumor for which he had trans-arterial embolization and started monthly sandostatin. In follow-up, he developed progressive exertional dyspnea and was referred for carcinoid heart screen.

On physical examination there were systolic and early diastolic right-sided murmurs, increased jugular venous pressure with prominent v wave and pitting peripheral edema.

Bidimensional transthoracic echocardiography showed hypomobile fibrotic tricuspid leaflets that resulted in incomplete coaptation and severe regurgitation. The pulmonary valve was not clearly visualized but there was evidence of moderate regurgitation and mild stenosis. Three-dimensional (3D) echocardiography using volume-rendered imaging provided global simultaneous assessment of the three tricuspid leaflets, which were thickened, retracted and immobile, resulting in a fixed orifice (Fig. 1A, *Video 1*). En face volume-rendered imaging of the pulmonary valve, acquired in left parasternal view, also showed thickened hypomobile cusps (Fig. 1B, *Video 2*). The tricuspid subvalvular apparatus and false tendon were also thickened (*Video 3*). Nevertheless, right ventricular function was normal, as assessed by tricuspid annular plane systolic excursion and right ventricular fractional area change. Speckle tracking strain analysis also showed normal right ventricular systolic deformation.

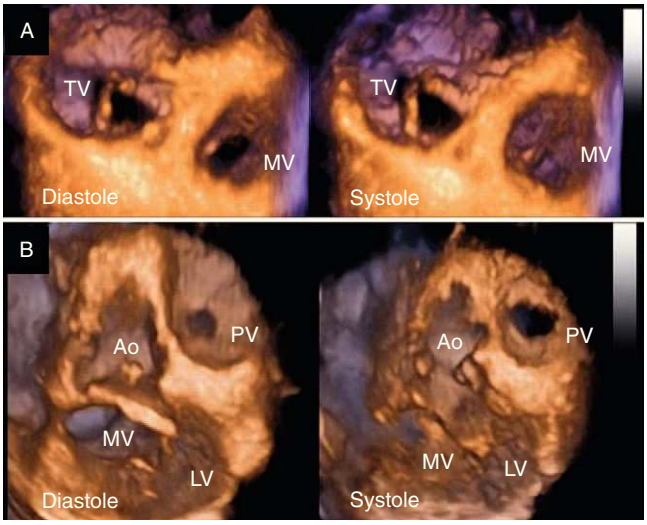

Figure 1. A: volume-rendered 3-dimensional echocardiography image showing thickened, retracted and immobile tricuspid leaflets in diastole and systole. B: face volume-rendered image of the pulmonary valve acquired in left parasternal view showing thickened hypomobile cusps in diastole and systole. Ao, aorta; LV, left ventricle; MV, mitral valve; PV, pulmonary valve; TV, tricuspid valve.

Carcinoid syndrome is an uncommon cause of valvular heart disease.[1] However, cardiac involvement occurs frequently in patients with this syndrome,[2,3] and adversely affects prognosis. This case demonstrates that 3D echocardiography provides comprehensive evaluation of the tricuspid and pulmonary valves in carcinoid heart disease with incremental anatomical detail. Specifically, 3D imaging provides better morphological and functional assessment of right-sided valvular lesions and allows the identification of surrounding structures affected by the pathologic process. Accordingly, this modality may contribute to better recognition of carcinoid heart in clinical practice. Moreover, right ventricular function may be preserved even in the presence of widespread right-sided valvular and subvalvular disease.

SUPPLEMENTARY MATERIAL

Supplementary material associated with this article can be found in the online version available, at doi:10.1016/j.rec.2010.10.009.

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Stagnant Cardiovascular Prevention: Professional Barriers

Prevención cardiovascular estancada: barreras profesionales

To the Editor,

We read with interest the article by Romero et al.[1] about trends and socioeconomic barriers in the field of cardiovascular prevention. In fact, the progress made in recent decades has allowed for improved prediction of cardiovascular disease risk. This, furthermore, contributes to reducing associated mortality. However, despite improved identification of cardiovascular risk factors and therapeutic advances to halt their progression, the degree of control that has been achieved is well below target and the residual risk remains high. The authors point to the possible existence of unidentified factors, the possible adverse effect of certain aggressive therapeutic measures and unfavorable lifestyle linked to socioeconomic status. Nevertheless, it is worth mentioning a major obstacle to cardiovascular prevention: "professional bar-

riers". The implementation of guidelines in practice has been periodically evaluated since the nineties in three cross-sectional surveys: EUROASPIRE.[2] Comparison of these surveys (1995-1996, 1999-2000, and 2006-2007) confirms a trend toward unfavorable lifestyles, with substantial increase in obesity and greater prevalence of smoking at younger ages. Despite a significant increase in the use of antihypertensive and lipid-lowering medication, management of blood pressure has not changed and nearly half of patients do not achieve recommended lipid goals. Asymptomatic individuals with high cardiovascular risk were first included in EUROASPIRE III,[2] with alarming results. A large percentage did not reach recommended goals, without a clear linkage to socioeconomic barriers. The management of smoking was not as effective as expected, due to a lack of professional support to stop smoking. Another negative result was the persistence of obesity. However, a third of overweight or obese subjects had never been warned about their condition, and the vast majority had not received advice on diet or physical activity. These data and the above mentioned factors explain this lack of professional adherence (lack of time, lack of incentives, lack of training[3,4]); therefore, we should compare them with the proven benefits of different intervention programmes. EUROACTION[5] was a multicenter, outpatient, nurse-run project for patients with heart disease and high risk individuals, as well as their partners or relatives. After one year, there was a significant improvement in lifestyle and control of cardiovascular risk factors between intervention and control groups, irrespective of the amount of medication used. These results should serve as a point of reflection: eliminating barriers is feasible from an individual perspective. Every physician should: *a)* ensure communication with both the patient and their closest family members, *b)* integrate nursing staff in order to implement lifestyle changes, and *c)* maintain long-term programs in the most appropriate settings. This will help to move past the current standstill and excessive medicalization, and toward effective cardiovascular prevention.

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Response to "Stagnant Cardiovascular Prevention: Professional Barriers"

Respuesta a «Prevención cardiovascular estancada: barreras profesionales»

To the Editor,

We appreciate Dr. Carro's interest in our article,[1] where we argued that the persistence of unfavorable socioeconomic factors perpetuates harmful behaviors and lifestyles.[1] This has been shown in many studies, in EUROASPIRE II, and indirectly in its three-phase comparison.[1–3] Carro also proposes the existence of a "professional barrier" that might explain the poor control of cardiovascular risk factors after coronary events. However, the significant increase in the prescription of antihypertensive, lipid-lowering, and cardioprotective drugs shows that there were no major obstacles to scheduled professional care in EUROASPIRE.[3]

Factors such as lack of adherence to treatment due to patient unwillingness or denial, side effects, and the cost of medications may have an impact on these unsatisfactory results, in addition to unfavorable socioeconomic factors.

We agree that the time spent by health professionals to educate and motivate their patients is extremely important. This has been demonstrated in cardiac rehabilitation programs, which continue to be underutilized despite their cost effectiveness for secondary prevention and primary prevention in patients with multiple cardiovascular risk factors.[4,5] Lack of funding has been one of the main causes of underutilization.

As we have stated,[1] many barriers continue to favor the alarming increase in cardiovascular risk factors. Society as a whole, of which health professionals are only a small part, must become more aware, make more resources available, and facilitate the changes that may lead to improved control of these factors.

Note: these opinions do not necessarily reflect those of the institutions to which the authors are affiliated.

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