Hypertrophic Cardiomyopathy in Non-specialized Centers in Argentina.

Miocardiopatía hipertrófica en centros no especializados en Argentina

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The article by Dr. Cáceres et al. published in Revista Argentina de Cardiología with preliminary data from the registry of hypertrophic cardiomyopathy (HCM) in non-specialized centers in Argentina is a retrospective, observational multicenter study that describes the assessment of this disease in non-specialized and outpatient centers of our country. (1)

A total of 95 patients with diagnosis of HCM, assessed by each professional without establishing the diagnostic criteria used, were included in the study.

Conventional studies (electrocardiogram and echocardiogram) were performed in most of the patients, but more complex practices such as cardiac magnetic resonance imaging were not. Thirty-two percent of patients were not evaluated by this technique despite it being a class I indication in cardiomyopathy management guidelines, (2) in addition to being a highly specific study to define wall thickness, detect possible phenocopies and provide useful information in risk prediction, such as the presence of late gadolinium enhancement.

Genetic tests were performed in 37% of cases. Lack of medical coverage or lack of availability in the hospital setting, were among the main reasons for not performing the tests. The high yield obtained in genotyped patients should be highlighted, exceeding that described in the literature (detection of pathogenic variants in sarcomeric mutations in 52% of requested tests).

Family screening was performed in only 44% of the cases, despite being a hereditary/familial pathology.

Clinical data (dyspnea as the most frequent symptom) and pharmacological treatment, with the use of beta-blockers and calcium channel blockers, did not differ from large international registries.

The assessment of left ventricular outflow tract obstruction was performed in resting and Valsalva conditions, and it would be useful to add its evaluation in standing position. (2)

Only 13% of the patients were studied under stress conditions by means of stress echo. A more accessible and cost-effective strategy, such as ergometry, could have been chosen to assess the behavior of intra-stress blood pressure and identify conditions of greater risk. (3)

Regarding the indication for implantable cardioverter-defibrillator (ICD), no mention is made of the risk stratification criteria used, with no clear information on family history, which is very relevant at this point. Along the same lines, Holter ECG was only performed in 66% of the cases; taking into account that the presence of ventricular arrhythmia, possibly detected with this study, is an independent predictor of sudden death. (4)

Finally, 9% of patients had or were indicated to have ICDs at follow-up, a lower number than that reported in international multicenter registries. (5)

We can conclude that this interesting registry with local data reflects the lack of access to more specialized systems for patients with this not infrequent disease, in which a multidisciplinary group that also includes specialists in genetics and advanced cardiac imaging can be counted on to improve, above all, diagnosis, risk stratification and family screening.

Ethical considerations

Not applicable.

Conflicts of interest

None declared.

(See authors' conflict of interests forms on the web).

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AUTHORS' REPLY

Dear Drs Lezcano and Casas,

We appreciate your comments on our article "Preliminary data from the registry of hypertrophic cardiomyopathy in non-specialized centers in Argentina: exploring behind the veils of everyday practice". We are pleased to see the interest and attention to detail you have devoted to our study.

As you have pointed out, the work presented is a preliminary, observational study with initial data. We especially appreciate your observations regarding functional testing, the importance of family screening, and the indication for implantable cardioverter-defibrillator (ICD). In this preliminary phase, our aim was to provide a preview of the most significant registry data. We also mentioned that, despite the "natural ambitious inertia" of trying to collect as much data as possible, we chose to prioritize certain relevant data to ensure a high participation rate and data completeness, which we consider fundamental to the success of any clinical registry.

We hope that, in the final phase of the study, with more data and more detailed analysis, we will be able to address these areas more comprehensively. We again thank you for your valuable input and wish that the final results of the study will provide a more complete picture of the management of hypertrophic cardiomyopathy. We hope that our work will inspire new proposals to improve the care of our patients.

Sincerely.

Leonardo Cáceres, Rodrigo Cano, Camila Correa Sadouet, Adrián Mahl, Gisela Streintenberger, Guillermo Mazo, Maribel Kanchi, Heraldo D' Imperio
SAC Research Area

High-density Lipoproteins and SARS-CoV-2 Infection

Lipoproteínas de alta densidad e infección por SARS-CoV-2

PABLO DANIEL CUTINE[1]

The association between infectious diseases and development of cardiovascular (CV) disease is a phenomenon of growing importance, underscored in recent years by the observation of a marked increase in the incidence of CV events among COVID-19 patients within one year after having the infection.

An inverse relationship between the levels of high-density lipoprotein (HDL)-cholesterol and atherosclerosis development has been described in observational studies (within a certain range of values). Several mechanisms have been proposed to explain this observation, such as reverse cholesterol transport and antioxidant activity, among others. (2)

The research conducted by Davico et al. (3) highlights the frequently unaddressed complexities of the pathophysiological analysis of lipoprotein metabolism

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and its relationship with both COVID-19 and atherosclerosis.

The authors evaluated the cardioprotective effect of HDL in 18 asymptomatic patients after 4 weeks of SARS-CoV-2 infection, 9 patients with post-COVID syndrome (with a consistently worse performance in the 6-minute walk test), and 10 healthy controls. They particularly focused on their antioxidant capacity, mainly as a result of paraoxonase-1 (PON1), and reverse cholesterol transport, evaluating cellular cholesterol efflux, free cholesterol esterification by lecithin-cholesterol acyltransferase (LCAT), and the exchange of triglyceride-esterified cholesterol between HDL and Apo B-containing lipoproteins by means of the cholesterol ester transfer protein (CETP).

No significant differences were found in the lipoprotein profile, tested inflammatory markers, or evaluated parameters of reverse cholesterol transport among the groups under analysis. However, asymptomatic patients showed a higher PON1 enzymatic activity versus the asymptomatic and post COVID-19 syndrome groups. HDL antioxidant activity could therefore be a defense mechanism against SARS-CoV-2 infection.

They also observed a negative correlation between the steps in reverse cholesterol transport and inflammatory markers, which supports the theory that inflammation may affect HDL functionality. This finding, consistent with previous publications (4), might shed light on a mechanism by which persistent inflammation, in this case related to SARS-CoV-2 infection, is associated with a higher incidence of cardiovascular events in the medium term. This promising hypothesis needs to be confirmed by subsequent studies on atherosclerosis that reproduce the results in a larger population.

Large clinical trials of specific therapies targeting HDL cholesterol have failed to show any relevant clinical benefit. The reason may be that HDL consists of heterogeneous particles with multiple and complex mechanisms affecting various body functions. (5) The findings of this study emphasize the need for further research on lipoprotein metabolism.

Ethical considerations

Not applicable.

Conflicts of interest

None declared.

(See authors' conflict of interests forms on the web).

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AUTHORS' REPLY

We are deeply grateful for your interest in our article, as well as your analysis, which highlights the importance of evaluating the functional aspects of high-density lipoproteins (HDL), with their well-known cardioprotective capacity, rather than just their cholesterol content. Clinical trials focused on therapies aimed at increasing HDL-cholesterol levels have failed to demonstrate the expected clinical benefits with respect to morbidity and mortality due to cardiovascular disease, suggesting that the therapeutic target should be some of the antiatherogenic functions of HDL. Our work confirms that persistent inflammation and oxidative stress, in this case as a result of SARS-CoV-2 infection and known to be associated with atherosclerosis, are related to impaired reverse cholesterol transport, as well as HDL antioxidant function. These pathophysiological mechanisms would be important not only for SARS-CoV-2 infection and similar viruses, but also for all conditions involving chronic inflammation and oxidative stress. Therefore, they could at least partly explain the residual cardiovascular risk after the implementation of therapies targeting traditional lipid profile markers such as HDL-cholesterol.

Belén Davico

Hemodynamic Parameters and Prognosis in Pulmonary Hypertension

Parámetros hemodinámicos y pronóstico en hipertensión pulmonar

NICOLAS D'AMELIO[1]

Pulmonary hypertension (PH) is a hemodynamic condition associated with numerous diseases, classified into different subgroups according to the latest 2022 ESC/ERS clinical practice guidelines. (1) The presence of this condition increases the morbidity and mortality of patients suffering from it, and, left to its natural evolution it ends up affecting right ventricular function, conditioning ventricular arterial uncoupling, the onset of heart failure and death.

Risk stratification of patients with PH is a fundamental step at the time of diagnosis and during follow-up, since it is the basis for decision-making on the amount and type of vasodilator drugs to be used. (1) As highlighted by the authors of the study Usefulness of various hemodynamic parameters as prognostic markers in pulmonary hypertension, (2) from the time of diagnosis, throughout the performance of right heart catheterization (RHC), we can acquire hemodynamic data validated in the risk calculators recommended by the 2022 ESC/ERS, where right atrial pressure, indexed systolic volume, pulmonary artery oxygen saturation and cardiac index stand out. Regardless of the recommendations, those of us who dedicate our daily work to this disease understand that there are numerous alternative variables to those proposed, with a strong prognostic impact, though with the problem of not being validated in the large registries of this disease. The hemodynamic evaluation of afterload is equivalent in cardiac mechanics to the resistance imposed on the ventricle during contraction and represents the ventricular wall tension that must be overcome to eject blood and generate cardiac output. Afterload is represented by two components, pulmonary vascular resistance (PVR) and capacitance (PC). Pulmonary vascular resistance constitutes the stationary element and is found mainly in small arteries and arterioles, since it is highly dependent on vessel diameter. Pulmonary compliance represents the pulsatile component, which is the storage capacity of all arteries and arterioles as a whole, and is related to arterial elasticity and the geometric characteristics of the vessel given by its thickness and radius. (3,4)

Our colleagues were able to show, in an impressive number of patients for this disease and for our country, the prognostic validity of two key hemodynamic variables in the pathophysiology of afterload in patients with PH, justifying and ratifying the use of alternative variables in addition to those established in prognostic scores recommended by clinical practice guidelines but not validated in our population. I consider promising and challenging the upcoming time in which the Argentine Registry of Pulmonary Hypertension (ARGEN-HP), which is currently in the recruitment phase, can be used as an opportunity to validate the strategies recommended to date by the 2022 ESC/ERS, as well as alternative variables that allow stratification of the prognosis of this entity using data from our own patients

Ethical considerations

Not applicable.

Conflicts of interest

None declared.

(See authors' conflict of interests forms on the web).

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AUTHORS' REPLY

Dear Dr. D'Amelio,

On behalf of the authors of the study, I thank you for your comments and share your opinion on the importance of prioritizing the assessment of ventriculoarterial coupling when estimating the prognosis of patients with pulmonary hypertension, regardless of its etiology.

At present, there are many randomized studies in pulmonary arterial hypertension that use pulmonary vascular resistance as the endpoint, probably assuming it as a surrogate for events. We will see if future national and international recommendations include these variables in the prognostic score of patients.

Sincerely yours faithfully.

Dr. Nicolas Caruso