* Corresponding author:.
E-mail address: ferreiro_44@hotmail.com (R. González-Ferreiro).

Available online 31 October 2020

REFERENCES

1. Axtell AL, Bhambhani V, Moonsamy P, et al. Surgery does not improve survival in patients with isolated severe tricuspid regurgitation. *J Am Coll Cardiol*. 2019;74:715–725.
2. Montorfano M, Beneduce A, Ancona MB, et al. Tricento transcatheter heart valve for severe tricuspid regurgitation. *J Am Coll Cardiol Intv*. 2019;12:e189–e191.
3. Íñiguez-Romo A, Baz JA, Calvo-Iglesias FE, Encisa J, Abu-Assi E. Percutaneous tricuspid valve replacement using a valved bioprosthesis. *Rev Esp Cardiol*. 2019;72:1083–1084.
4. Montorfano M, Beneduce A, Ancona MB, et al. Tricento transcatheter heart valve for severe tricuspid regurgitation: procedural planning and technical aspects. *JACC Cardiovasc Interv*. 2019;12:e189–e191.
5. Wilbring M, Tomala J, Ulbrich S, Murugaboopathy V, Matschke K, Kappert U. Recurrence of right heart failure after heterotopic tricuspid intervention. *J Am Coll Cardiol Intv*. 2020;13:e95–e96.

https://doi.org/10.1016/j.rec.2020.09.016
1885-5857/

Time to climb 4 flights of stairs provides relevant information on exercise testing performance and results

El tiempo en subir 4 tramos de escaleras da información relevante sobre la capacidad funcional y resultados en una prueba de ejercicio

To the Editor,

Achievement of a maximal workload of 10 metabolic equivalents (METs) is associated with good outcome with events rates of just around 1%/y,[1–3] whereas patients with lower exercise capacity have significantly worse outcomes. However, there is little information on common daily exercises that can be quantitatively measured and provide information equivalent to this exercise performance.[4] We aimed to assess the ability to climb stairs in patients undergoing exercise testing.

Consecutive ambulatory patients referred for a clinically indicated exercise test were included. After exclusions due to premature interruption of the test for clinical reasons (n = 6) or inability to properly count the stair-climbing exercise time (n = 3), we included 165 patients (mean age 66 ± 12 years, 55% male) who underwent treadmill exercise testing with an electrocardiogram (n = 15) or echocardiography (n = 150). All included patients exercised until exhaustion. At least 15 minutes after exercise testing, patients were asked to climb 4 flights of stairs (60 stairs) at a fast pace without stopping but also without running. The time to complete the task was recorded. Good exercise capacity was defined as the achievement of 10 METs,[1,2] intermediate as the achievement of 8-9.9 METs, and limited exercise capacity as < 8 METs.

Clinical and exercise testing patient characteristics are listed in table 1. Patients who achieved 10 METs during exercise (n = 69) completed the stair-climbing test in 46 ± 11 seconds, those who achieved 8-9.9 METs (n = 37) in 58 ± 21 seconds, and those who achieved < 8 METs (n = 59) completed it in 82 ± 41 seconds ($P < .001$). The correlation between METs and the stair-climbing test time was 0.53 (figure 1). The area under the ROC curve for the stair-climbing time to predict an achievement of 10 METs was 0.79 (95%CI, 0.72-0.86; $P < .001$). A cutoff value of 60 seconds had high sensitivity (94%) and negative predictive value for 10 METs (93%), although specificity and positive predictive values were 53% and 59%, respectively. A cutoff value of 90 seconds had low sensitivity (34%)

Table 1
Clinical baseline characteristics and exercise results in the 165 patients

Clinical characteristics	
Current smokers	18 (11)
Diabetes	32 (19)
Hypertension	88 (53)
Hypercholesterolemia	86 (52)
History of CAD	33 (20)
Reasons for testing	
Chest pain	
Typical	41 (25)
Atypical	40 (24)
Noncoronary	21 (13)
Dyspnea	33 (20)
Evaluation of CAD	9 (6)
HCM/valvulopathies	4 (2)
Others	15 (9)
Medications	
Beta-blockers[a]	14 (9)
ACEI/ARA-II	58 (35)
Calcium antagonists	18 (11)
Nitrates	14 (9)
Diuretics	7 (4)
Exercise testing (n = 165)	
% Achieved of the maximal age-predicted heart rate	97 ± 16
Symptoms during the test	31 (19)
Positive electrocardiogram	20 (12)
Positive exercise testing[b]	44 (27)
Exercise echocardiography (n = 150)	
Resting wall motion abnormalities	16 (11)
Ischemia	48 (32)
Abnormal results	
Ischemia +/-resting wall motion abnormalities	57 (38)
Exercise-induced diastolic dysfunction	3 (2)
Noncardiac dyspnea	2 (1)
Exercise-induced abnormalities in HCM/valvulopathies[c]	3 (2)
Others	1 (1)
Wall motion score index	
Rest	1.04 ± 0.20

Table 1 *(Continued)*
Clinical baseline characteristics and exercise results in the 165 patients

Peak	1.16 ± 0.30
Left ventricular ejection fraction, %	
Rest	60 ± 6
Peak exercise	65 ± 11

ACEI, angiotensin-converting enzyme inhibitors, ARA-II, angiotensin II receptor antagonist, CAD coronary artery disease; HCM, hypertrophic cardiomyopathy.
Values are expressed as No. (%) or mean ± standard deviation.
[a] The day of the exercise test.
[b] Defined as either symptoms or ischemic electrocardiogram changes during testing.
[c] Exercise-induced left ventricle outflow tract gradient ≥ 50 mmHg and/or significant mitral regurgitation in patients with hypertrophic cardiomyopathies or valvulopathies.

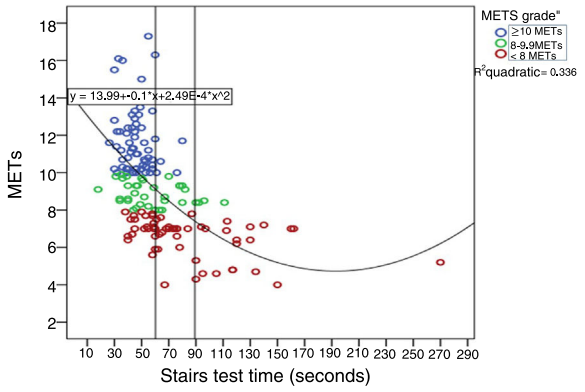

Figure 1. Relationship between stair-climbing time and METs achieved on treadmill exercise testing.

but high specificity (96%) and positive predictive value (83%) for predicting < 8 METs.

Abnormal results were seen in 58% of patients with limited exercise capacity, 30% with intermediate exercise capacity, and 29% with good exercise capacity ($P = .002$), as well as in 32% of patients who completed the stair-climbing test in at least 60 seconds compared with 52% of those that took between 61 and 89 seconds and 58% of those who took longer ($P = .018$).

In a previous study measuring O_2 consumption in healthy young volunteers, climbing up 70 steps in 1 minute equalled 8.6 ± 0.4 METs.[5] Most participants able to step up 4 flights of stairs in 1 minute in our study performed well during exercise testing. However, the lack of prediction in them is likely because the stair-climbing test consists of a mixture of aerobic and anaerobic evaluation, as it implies achieving a high workload in a short time.

Regardless of this consideration, individuals who cannot complete the stair-climbing test in 1.5 minutes are expected to have poor functional capacity and worse exercise test performance and results. In contrast, the range of achieved METs in patients who complete the stairs test in less than 1 minute varies more widely. These findings could be of interest for stress testing and stress echocardiography triage strategies.

Jesus Peteiro[a,b,c,*] and Alberto Bouzas-Mosquera[a,b,c]

[a]*Servicio de Cardiología, Complejo Hospitalario Universitario de A Coruña (CHUAC), A Coruña, Spain*
[b]*Facultad de Ciencias de la Salud, Universidad de A Coruña, A Coruña, Spain*
[c]*Centro de Investigación Biomédica en Red Enfermedades Cardiovaculares (CIBERCV), Spain*

[*] Corresponding author:
E-mail address: pete@canalejo.org (J. Peteiro).

Available online 22 October 2020

REFERENCES

1. Peteiro J, Bouzas-Mosquera A, Broullón F, Martinez D, Yañez J, Castro-Beiras A. Value of an Exercise Workload ≥10 Metabolic Equivalents for Predicting Inducible Myocardial Ischemia. *Circ Cardiovasc Imaging.* 2013;6:899–907.
2. Fine NM, Pellikka PA, Scott CG, Gharacholou M, McCully RB. Characteristics and Outcomes of Patients Who Achieve High Workload (≥10 Metabolic Equivalents) During Treadmill Exercise Echocardiography. *Mayo Clin Proc.* 2013;88:1408–1419.
3. Peteiro J, Bouzas-Mosquera A, Pertega S, Barbeito-Caamaño C, Broullón F, Vázquez-Rodríguez JM. Predicción de diferentes causas de mortalidad mediante ecocardiografía de ejercicio en mujeres. *Rev Esp Cardiol.* 2018;71:55–56.
4. Ainsworth BE, Haskell WL, Whitt MC, et al. Compendium of physical activities: an update of activity codes and MET intensities. *Med Sci Sports Exerc.* 2000;32(9 Suppl):S498–S504.
5. Bassett DR, Vachon JA, Kirkland AO, Howley ET, Duncan GE, Johnson KR. Energy cost of stair climbing and descending on the college alumnus questionnaire. *Med Sci Sports Exerc.* 1997;29:1250–1254.

https://doi.org/10.1016/j.rec.2020.09.017
1885-5857/

Aortitis: a simulator of intramural aortic hematoma

Aortitis: un imitador del hematoma intramural aórtico

To the Editor,

Most cases of aortitis are noninfectious and their clinical presentation varies widely, ranging from asymptomatic aortic aneurysm to acute chest pain or heart failure.[1] Some patients with aortitis may simulate an acute aortic syndrome (AAS) at presentation.[2] Because treatment strategies for aortitis and AAS diverge widely, an accurate diagnosis is of the utmost importance.

We report 2 cases of IgG-4 aortitis simulating an intramural aortic hematoma (IAH). In addition, we provide a detailed literature-based review of patients with aortitis mimicking an IAH. The main diagnostic clues to differentiate these 2 types of aortic entities are presented in table 1.

Patient 1. A 76-year-old woman with a history of ascending aortic aneurysm (45 mm) and aortic regurgitation (AR) presented to the emergency department with acute and severe chest pain. Blood pressure was 170/80 mmHg and D-dimer value was 1130 ng/mL. Urgent computed tomography (CT) suggested an IAH in the aortic root, ascending aorta, and aortic arch. An ascending aortic aneurysm (50 mm) with a circular aortic wall thickening (8 mm) was documented (figure 1A,B). The patient underwent urgent surgery with replacement of the aortic root, ascending aorta, and arch. At surgery, a marked thickening of the aortic wall without signs of intramural hemorrhage was docu-