Tako-Tsubo Cardiomyopathy and Drowning Syndrome

Is There a Link?

To the Editor:

We read with great interest the recent article in CHEST (September 2007) on tako-tsubo cardiomyopathy (TTC) by Kurowski et al. and would like to congratulate the authors for their elegant study. In 35 patients with TTC, they reported the occurrence of emotional stress events in 15 patients (42.9%) including a case of near-drowning syndrome (NDS). In our clinical series of 52 patients (51 women; mean ± SD age, 63.55 ± 10.55 years), an emotional stress event was documented in 43.2%. We also registered a 57-year-old woman presenting with TTC after the occurrence of NDS. A few hours after the event, ECG changes developed, and a typical echocardiographic pattern of apical ballooning with a mild increase in serum troponin level was seen. Left ventriculography confirmed the apical ballooning, and coronary angiography revealed normal coronary arteries. ECG changes and apical contraction abnormalities were completely reversed within 3 weeks. Drowning is an extremely stressful situation that leads, via the uncommon combination of different pathophysiological mechanisms, to sympathetic nerve activation (SNA). In patients with NDS, submersion in liquid causes hypoxemia due to fluid aspiration or reflexive laryngospasm. Once hypoxemia occurs, cerebral hypoxia, pulmonary reflexes, and concomitant panic and/or struggle induce SNA. Hypoxemia related to NDS could have induced transient myocardial dysfunction mediated by an SNA. Although the pathogenesis of TTC remains unclear, a common pathophysiological pathway seems to be an exaggerated sympathetic activation. Thus, SNA could be considered the "real" link between NDS and TTC.

From a clinical point of view, it should be kept in mind that prolonged but reversible anterior-apical contraction abnormalities without significant coronary artery disease may also occur in critically ill patients who have been hospitalized because of a wide variety of primary noncardiac illnesses (ie, neurogenic myocardial stunning). NDS should therefore be added to the already long list of stressful conditions that can lead to the development of TTC. Patients surviving the drowning represent a very interesting and challenging population with potential severe cardiac complications, including malignant arrhythmias and myocardial dysfunction. Thus, in the critical care setting, careful monitoring is needed in order to implement the appropriate diagnostic and therapeutic interventions.

The authors have reported to the ACCP that no significant conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians (www.chestjournal.org/misc/reprints.shtml).

Correspondence to: Rodolfo Citro, MD, San Luca Hospital, Salerno, Italy; e-mail: rodolfo.citro@tele2.it

DOI: 10.1378/chest.08-0541

REFERENCES


Latent Pulmonary Hypertension

Looking Beyond the Scene

To the Editor:

Although many noninvasive laboratories are introducing exercise Doppler echocardiography (Ex-Echo) as a standard technique to unmask latent or presymptomatic pulmonary hypertension (exercise-induced pulmonary hypertension [Ex-PHtn]), several important issues need redress.1–4

1. A consensus should be reached on the optimal exercise protocol (treadmill vs supine/upright/semirecumbent bicycle) to be implemented since each protocol is characterized by different loading conditions. At the present time, semirecumbent exercise echocardiography appears to be more suitable for reliable and reproducible echo-Doppler measurements considering that measures are made during exercise and recovery.

2. There is a need to define the full physiologic range of pulmonary pressure responses to both bicycle and treadmill exercise in relation to age, gender, body mass index, and level of physical training.5 In highly trained athletes, a high workload is associated with moderate increases in pulmonary artery systolic pressure as a direct consequence of increased stroke volume and left ventricular filling pressures.5–7

3. An emerging question is who to screen for Ex-PHtn, knowing the yield of a screening examinations depends not only...