

^aServicio de Cardiología, Hospital de Cabueñes, Gijón, Asturias, Spain

^bServicio de Cardiología, Hospital Son Espases, Palma de Mallorca, Illes Balears, Spain

^cServicio de Cardiología, Hospital Marqués de Valdecilla, Santander, Cantabria, Spain

^dServicio de Cardiología, Hospital Virgen de la Salud, Toledo, Spain

^eServicio de Cardiología, Hospital San Millán, Logroño, La Rioja, Spain

^fServicio de Cardiología, Hospital de Cáceres, Cáceres, Spain

*Corresponding author:.

E-mail address: inigo.lozano@gmail.com (I. Lozano).

◇Contributors: Felipe Hernández-Hernández, Pilar Carrillo-Sáez, Ignacio Cruz-González, Eduardo Pinar-Bermúdez, Garikoitz Lasa-Larraya, Pilar Mañas, Valeriano Ruiz-Quevedo, Jeremías Bayón, Sergio Rodríguez-Leiras, Silvia Gopar-Gopar, and Esther Sánchez-Insa.

Available online 24 March 2015

REFERENCES

1. Gurbel PA, Rafeedheen R, Tantry US. Tratamiento antiagregante plaquetario personalizado. *Rev Esp Cardiol*. 2014;67:480–7.
2. Becker RC, Bassand JP, Budaj A, Wojdyla DM, James SK, Cornel JH, et al. Bleeding complications with the P2Y₁₂ receptor antagonists clopidogrel and ticagrelor in the PLATelet inhibition and patient Outcomes (PLATO) trial. *Eur Heart J*. 2011;32:2933–44.
3. James SK, Storey RF, Khurmi NS, Husted S, Keltai M, Mahaffey KW, et al. Ticagrelor versus clopidogrel in patients with acute coronary syndromes and a history of stroke or transient ischemic attack. *Circulation*. 2012;125:2914–21.
4. Storey RF, Becker RC, Harrington RA, Husted S, James SK, Cools F, et al. Characterization of dyspnoea in PLATO study patients treated with ticagrelor or clopidogrel and its association with clinical outcomes. *Eur Heart J*. 2011;32:2945–53.
5. Basra SS, Tsai P, Lakkis NM. Safety and efficacy of antiplatelet and antithrombotic therapy in acute coronary syndrome patients with chronic kidney disease. *J Am Coll Cardiol*. 2011;58:2263–9.
6. Hira RS, Kennedy K, Jneid H, Alam M, Basra SS, Petersen LA, et al. Frequency and practice level variation in inappropriate and non-recommended prasugrel prescribing: insights from the NCDR PINNACLE Registry. *J Am Coll Cardiol*. 2014;63:2876–7.

<http://dx.doi.org/10.1016/j.rec.2014.12.019>

Death of Cardiac Origin Following Medical Visit and Discharge: What did my Patient Die of?



Fallecimiento de origen cardíaco tras visita médica y alta: ¿de qué murió mi paciente?

To the Editor,

In 2012 and 2013, there were 2942 judicial autopsies at the Barcelona and L'Hospitalet de Llobregat Forensic Pathology Centre of the Catalan Institute of Legal Medicine (*Institut de Medicina Legal de Catalunya*). Of these, 1087 patients died of violent causes (homicides, suicides, or accidents), 1835 of natural causes, and the remaining 20 required anthropological assessment.

In services such as ours, death of cardiac origin is commonly associated with sudden death. On some occasions, the death follows a recent medical visit. Autopsy is performed by court order, either at the relatives' request, or because, in the absence of a medical death certificate, the death is criminally suspicious, requiring medico-legal investigation. Given the scarcity of work on this subject, we decided to study the prodromal clinical manifestations of patients who died of cardiac cause following a hospital or home medical visit in the 72 hours prior to death.

Our results showed that there were 25 such deaths over the study period of 2012 and 2013. The deceased were 18 men (72%) and 7 women (28%), aged 31 to 86 years (mean, 64.36 years). Of these, 13 (52%) were seen as outpatients, 11 (44%) as outpatients, and 1 (4%) was seen by the Emergency Medical Service. The reasons for consultation were taken from medical records and were as follows: abdominal pain in 12 patients, precordial pain in 8 patients (1 with associated dyspnea), and syncope, anxiety, cardiac rhythm disorders, alcohol intoxication, and respiratory infection in 1 patient each. The association of symptoms with cause of death diagnosis was as follows: in 13 deaths (48%) of cardiac ischemic origin, the reasons for attendance were precordial pain in 6 patients (of these, 1 had associated dyspnea) and abdominal pain in 7. Of 4 deaths due to a ruptured aortic aneurysm, the reason for attendance was abdominal pain in 2 patients, syncope in 1, and cardiac rhythm disorders in 1. Of 3 deaths due to hypertensive cardiopathy, the reasons for attendance were precordial pain in 2 patients and abdominal pain in 1. Of 2 deaths due to dilated

cardiomyopathy, 1 patient presented with alcohol intoxication and the other with an anxiety attack. Of 2 deaths due to congestive heart failure, both patients presented with abdominal pain. One death was due to giant cell myocarditis, and the reason for attendance was respiratory infection.

Time from medical consultation to death ranged from 2 to 72 hours, with a mean time of 22.64 hours. None of the patients were reviewed by a cardiologist.

Once the results of the additional requested tests (histology and toxicology) were analyzed and combined with the autopsy findings, we concluded that the definitive causes of death were: cardiac ischemic origin in 13 patients (48%); aortic aneurysm rupture in 4 patients (16%); hypertensive cardiopathy in 3 patients (12%); dilated cardiomyopathy in 2 patients (8%); congestive heart failure in 2 patients (8%); and giant cell myocarditis in 1 patient (4%).

Of the 25 deaths, 13 were of cardiac ischemic origin (48%), unrelated to the patient's clinical treatment, since there are no clinical symptoms, electrocardiogram changes, or angiographic findings to suggest acute ischemia as the direct causal factor of death in almost 50% of sudden deaths. Most other cases of sudden death in patients with ischemic cardiomyopathy are probably caused by sustained ventricular tachycardia due to re-entry around an old infarct scar, triggering ventricular tachycardia or ventricular fibrillation.

In conclusion, the results from this descriptive study show that, despite the high number of medical acts carried out every day, in 2012 and 2013, only 25 cases of death were attributable to a cardiac cause undiagnosed at the time of recent medical review. This statement does not imply any diagnostic error, or any evaluation of clinical practice. In these cases, the complexity and seriousness of diagnostic cardiology should be taken into account,¹ since the clinical picture of an aortic aneurysm, abdominal pain, or giant cell myocarditis hamper the initial diagnosis.

Despite concern about the negative consequences of the increasing number of professional liability claims against doctors,² and, considering Gaultier's previous affirmation that within our time death would no longer be accepted as an inevitable fate,³ there were no records that relatives intended to file a medical complaint at the time of collection of the body. We acknowledge, however, the possibility that relatives may subsequently file a

professional liability claim after receiving definitive autopsy results.

However, there is little likelihood of such a claim being filed against a physician who has reviewed a patient a few days or hours previously and who then dies suddenly. The fundamental aim of judicial autopsy is to determine the cause of death, which is ascertained by macroscopic examination, histological and toxicological assessment, and, as of 2012, the genetic study of cardiac diseases causing sudden death, performed in the *UdG-IDIBGI* genetics laboratory, with repercussions for genetic counselling of relatives.⁴

Helena Martínez-Alcázar,* Mercè Subirana-Domènech,
and Josep Castellà-García

*Servei de Patologia Forense, Institut de Medicina Legal de Catalunya,
Barcelona, Spain*

*Corresponding author:

E-mail address: helena.martinez@xij.gencat.cat
(H. Martínez-Alcázar).

Available online 21 March 2015

REFERENCES

1. Oetgen WJ, Parikh PD, Cacchione JG, Casale PN, Dove JT, Harold JG, et al. Characteristics of medical professional liability claims in patients with cardiovascular diseases. *Am J Cardiol*. 2010;105:745–52.
2. Gaultier C. Medical liability and coronary artery diseases. *Ann Cardiol Angeiol (Paris)*. 2007;56:16–20.
3. Arimany J. La responsabilidad profesional en cardiología. *Rev Esp Cardiol*. 2012;65:788–90.
4. Brugada J. La muerte súbita cardiaca. La necesidad de una estrategia integral para combatirla. *Rev Esp Cardiol Supl*. 2013;13(A):1.

<http://dx.doi.org/10.1016/j.rec.2015.01.003>