

Duarte Nuno Vieira • Anthony Busuttil
Denis Cusack • Philip Beth
Editors



Acta Medicinae
Legalis et Socialis

C. L. Santos¹, G. Castanheira¹, E. Sousa¹, M. C. Mendonça^{1,2}, F. Corte-Real^{1,2}

¹ Centre Branch of the Portuguese Institute of Legal Medicine, Coimbra, Portugal

² Faculty of Medicine, University of Coimbra, Portugal

SUDDEN DEATH OF CARDIOVASCULAR AETIOLOGY IN INDIVIDUALS YOUNGER THAN 45 YEARS OLD

Introduction

Sudden death in young individuals has always a significant social and economic impact. Nowadays, it is generally accepted that death occurring in young people seems to be more associated with cardiovascular pathology.

Methods

A retrospective study of cases of sudden death of cardiovascular aetiology in individuals less than 45 years old, from January 2006 until December 2008, was performed at the Centre Branch of the Portuguese National Institute of Legal Medicine. Data were analysed according to age and gender, types of fatal cardiovascular events and results of histological and toxicological ancillary investigation.

Results

During such period 979 autopsies were performed, 33 of which concerned sudden death in individuals younger than 45 years old; among these, just 9 were related to cardiovascular pathology (0.9% of the total number of autopsies; 27.3% of sudden death cases), 40% were related to other pathologies mostly pulmonary and in 24% cases the cause of death was undetermined. In cases related to cardiovascular pathology, the victims' age ranged from 19 to 45, with an average of 37 +- (SD- 8.4) years; the majority were male (77.8%; n=7) and 55.6% were married. In all cases, there was no information about occurrence of symptoms previously to death and, in fact, they were found already dead.

Histological samples were collected and processed in each and every case; inclusively, in five cases, sino-auricular and atrioventricular nodules were acutely analysed. The major causes of death (all with relative frequency of 22.2%) were obliterative coronariopathy, ischemic cardiopathy and acute heart infarction. There was also one

case of coronary thrombosis, one case related to aortic dissection and one case of acute myocarditis (in a 19 year-old male).

As for toxicological ancillary investigation, results were negative for alcohol and narcotics in all except two cases (1,59mg/dL and 2,62mg/dL alcohol level).

Discussion and Conclusions

The definition of sudden death accepted by most medical examiners includes not only instantaneous deaths but also those occurring up to one hour after the onset of symptoms, without the establishment of any definitive diagnose. In our study, we found that the nine individuals were found already dead with no information regarding symptoms or medical assistance previous to death. It could be expected a greater number of deaths due to cardiovascular disease and, as such, it could be reasoned those individuals with cardiovascular pathology that didn't die as quickly or that presented symptoms and received medical assistance, even if the final outcome was death, were not autopsied and, therefore, not included in our study.

As expected, most cases were male individuals, being cardiovascular pathologies evenly distributed over obliterative coronariopathy, ischemic cardiopathy and acute heart infarction.

Since there were only nine cases related to sudden death from cardiovascular disease in this period, it wasn't possible to determine a predominance relative to others causes of death. A study considering a range of more years, and therefore, including more cases, should be considered to further evaluate the impact of cardiovascular disease in the death of young individuals submitted to autopsies.

References

- COTRAN KUMAR, COLINS, ROBBINS, Pathologic basis of disease. 6th ed. W.B. Saunders Company.
- DI MAIO D, DI MAIO V. Forensic pathology. 2nd ed. CRC Press.