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Abstracts of papers presented to the International Contest for the «Néstor Acosta Tieles In Memoriam» Award at the II National Symposium on Sudden Cardiac Death and I Ibero-American Convention on Sudden Cardiac Death (December 6-9, 2016. Havana, Cuba)

Resúmenes de trabajos presentados al Concurso Internacional por el Premio «Néstor Acosta Tieles In Memoriam» del II Simposio Nacional de Muerte Súbita Cardiovascular y I Convención Iberoamericana de Muerte Súbita Cardiovascular (6-9 de diciembre de 2016. La Habana, Cuba)

Este artículo también está disponible en español

Editor's comment:

The II National Symposium on Sudden Cardiac Death and I Ibero-American Convention on Sudden Cardiac Death, was held in Havana, Cuba, during the days 6-9 December 2016. CorSalud has had the responsibility to publish the abstracts of several articles and magistral lectures which were showed up at such an important event. The Editorial Committee of the journal has respected the criteria of the Scientific and Organizing Committees in terms of selection, content, writing and grammar syntax of the papers.

1. Sudden cardiac death: behaviourism in deceased patients with autopsy protocol

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Introduction: Sudden cardiac death (SCD) remains an important public health problem considering its incidence rates and demographic data.
Objective: To characterize patients who died from sudden cardiac death (SCD) in the emergency department and the area assisted by the *"Hospital General Docente Aleida Fernández Chardiet"* who underwent autopsy between the years 2014-2015.
Method: A descriptive, retrospective and cross-sectional study was carried out in 83 patients. Contingency tables were made to statistically identify significant differences between the categories of some of the studied variables.
Results: Average age was 65.36 years, where male 63.9%, and white 66.3% predominated. 53% of patients died from acute coronary syndrome; most frequent cardiovascular risk factor was high blood pressure (57.8% of cases). 61.4% died despite resuscitation efforts in the emergency department. 19.3% died in the month of May and 34.9% between 06:00-11:59 hours.
Conclusions: Acute coronary syndrome was the most frequent cause of sudden cardiac death and high blood pressure was the commonest cardiovascular risk factor.
Keywords: Sudden cardiac death, Sudden death, Risk factors, Acute coronary syndrome, Autopsy
Palabras clave: Muerte súbita cardíaca, Muerte súbita, Factores de riesgo, Síndrome coronario agudo, Necropsia

2. Post cardiac arrest syndrome in the Cardiac Surgery Intensive Care Unit of the *Instituto de Cardiología y Cirugía Cardiovascular*

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Introduction: Little is known about certain predictors in patients initially resuscitated from cardiac arrest secondary to sudden death, which is a major health problem.
Objectives: To characterize in-hospital morbidity and mortality variables in patients resuscitated from cardiac arrest.
Method: Descriptive-retrospective study in 96 patients who developed post-cardiac arrest syndrome, admitted to the Intensive Care Unit in the *Instituto de Cardiología y Cirugía Cardiovascular* for five years.
Results: The 59.4% of patients died during hospital stay. Hyperglycemia in the first 24 hours after resuscitation, was the only independent variable with in-hospital mortality prognostic value (OR = 1.80 [1.03-3.01], p <0.025). Mortality was associated to male patients (68.4%), aged 70.7 ± 11 years, history of ischemic heart disease (73.7%), acute coronary syndrome (52.6%) as etiological diagnosis, with prevalence of ST-segment elevation. Variables such as prolonged resuscitation time, unconscious state after resuscitation, elevated creatinine, prolonged mechanical ventilation, prolonged stay in ICU and multiple organ failure, among others, also show significant relationship with in-hospital mortality in the univariate analysis.
Conclusions: Hyperglycemia in the first 24 hours after resuscitation is related to in-hospital mortality.
Keywords: Post-cardiac arrest syndrome, Morbidity, Hospital Mortality, Acute coronary syndrome, Blood glucose
Palabras clave: Síndrome posparada cardíaca, Morbilidad, Mortalidad hospitalaria, Síndrome coronario agudo, Glucemia

3. Population-Based Study of sudden cardiac death associated to recent cocaine consumption

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Introduction: Cocaine use has been associated with sudden cardiac death, but population-based post-mortem studies are scarce.
Objectives: To analyze the clinical-pathological characteristics of sudden death associated with recent cocaine use in a well-defined population.
Method: Sudden deaths occurred in Bizkaia between November 2012 and April 2016 were analyzed. A complete autopsy study was carried out in all of them; considered recent cocaine use and presence of cocaine and/or benzoylecgonine.
Results: Cocaine was detected in 68 cases (90% males), average age 42 years (ranging 18-62). The 65% aged 35 to 49 years. Ischemic heart disease (n=47) was the main cause, and coronary thrombosis, acute myocardial infarction, or both, were seen in 28 cases; while only 19 had chronic ischemic disease. The second group was that of cardiomyopathies (n=11). Other causes were intracranial hemorrhage, aortic dissection, congenital anomalies and sudden unexpected arrhythmic death. The 11% had a history of heart disease.
Conclusions: There is an important association between recent cocaine use and sudden death in men between 35 and 49 years old, so it should be considered as a risk variable in clinical trials of sudden cardiac death.
Keywords: Sudden death, Cocaine, Drug abuse, Forensic Pathology
Palabras clave: Muerte súbita, Cocaína, Abuso de drogas, Patología forense

4. Diagnosis of sudden death at the «Hospital Dr. Agostinho Neto» in Guantánamo, Cuba

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Introduction: The diagnosis of sudden death represents a challenge for health systems worldwide.
Objective: To assess trends in the diagnosis of sudden death.
Method: Cross-sectional, retrospective and correlational study in 58 cases diagnosed with sudden death who were performed an autopsy at the *Hospital Agostinho Neto* of Guantánamo, Cuba, in 2015.
Results: Deceased patients with the above men

tioned diagnosis predominated, males (56.9%) at the out-of-hospital setting (55.2%) and due to non-ischemic causes (58.6%). In 51.6%, the diagnosis was not issued as stated in the international nomenclature. The 90% of the sudden cardiac ischemic deaths was produced by acute myocardial infarction and in 88.2% of the non-ischemic cases, global cardiomegaly was observed with hypertrophy or dilatation, or both, of the cardiac cavities. A correlation between the corrected and direct causes of death was found, as well as between the intermediate and basic ones.

Conclusions: The out-of-hospital sudden death prevailed. There was no demonstrated the correlation between the place of death, the age groups and sex with the basic and direct causes of death, but there was an actual relationship between the direct cause of original death and the corrected one, denoting that the sudden death diagnosis was not stated as in the international nomenclature.

Keywords: Sudden death, Cause of death, Atherosclerosis

Palabras clave: Muerte súbita, Causas de muerte, Aterosclerosis

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5. New markers for malignant ventricular arrhythmias in patients with ST-segment-elevation acute myocardial infarction

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Introduction: Ventricular arrhythmias are an important cause of death in patients with acute myocardial infarction.

Objective: To determine the usefulness of leucoglycaemic and polymorphonuclear/lymphocytes*glycemia indices as predictors for ventricular arrhythmias in patients with acute myocardial infarction.

Method: Analytical study in 118 patients with ST-segment elevation acute myocardial infarction, divided into 2 groups, who developed sustained ventricular tachycardia, ventricular fibrillation, or both, during hospital stay; and those who did not develop them.

Results: The incidence of sustained ventricular tachycardia and ventricular fibrillation was 6.8%; area under the ROC curve for the leuko-glycemic index was 0.716 (95% CI, 0.519-0.913, p=0.042), and the cut-off point of 1235 showed sensitivity of 75% and specificity of 52.6% for the diagnosis of these arrhythmias. The polymorphonuclear/lymphocytes* glycemia index showed an area under the ROC curve of 0.764 (95% CI, 0.606-0.921, p=0.013) and the cut-off point of 14.8 showed sensitivity and specificity of 87.5% and 61.8%, respectively, for the diagnosis of both arrhythmias.

Conclusions: Leuco-glycaemic and polymorphonuclear/lymphocyte*glycemia indices can be predictors for malignant ventricular arrhythmias during hospital stay in patients with ST-segment elevation acute myocardial infarction.

Keywords: Ventricular tachycardia, Ventricular fibrillation, Sudden cardiac death, Myocardial infarction

Palabras clave: Taquicardia ventricular, Fibrilación ventricular, Muerte súbita cardíaca, Infarto de miocardio

6. Relationship between ischemic heart disease and epicardial fat in sudden cardiac death

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Introduction: Epicardial fat is involved in the inflammatory process associated with atherosclerotic plaque formation and development. Several authors have linked the presence of coronary atherosclerotic plaque with increased epicardial fat thickness, which favors cardiovascular risk.

Objectives: To analyze the relationship between epicardial fat thickness (EFT) and ischemic heart disease (IHD) in sudden cardiac death cases (SCD).

Method: One hundred and fifty-six deceased adults (124 men and 32 women) under 55 years of age were studied between 2011-2016. Ninety-nine cases were SCD owing to IHD and 57, controls. A forensic autopsy was performed with lipid profile, and histopathological study, EFT measurement (formalin-post fixation) in 9 localizations, and statistical study.

Results: Body mass index (p=0.007), abdominal perimeter (p=0.002), EFT in the anterior left/right ventricular wall (p=0.059 and p=0.005), in the right atrioventricular groove (p=0.04) and total score (sum of EFT in all locations) was correlated with the diagnosis of SCD due to IHD (p=0.05). EFT in both atrioventricular grooves measurement was more correlated (r=0.688 vs. 0.649, p<0.001) in patients and controls. There was neither correlation between EFT and lipid profile nor coronary stenosis severity, nor an acceptable EFT cut-off point nor total score to predict significant stenosis nor number of affected vessels; although it would have been different if we had registered the degree of stenosis more accurately in different arterial regions.
Conclusions: The amount of epicardial fat is significantly higher in the SCD due to IHD.
Keywords: Sudden cardiac death, Atherosclerosis, Coronary artery disease, Autopsy, Epicardial fat
Palabras clave: Muerte súbita cardíaca, Aterosclerosis, Enfermedad de la arteria coronaria, Autopsia, Grasa epicárdica

7. Factors related to sudden death in patients with acute myocardial infarction

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Introduction: Ischemic heart disease is an important cause of death in Cuba and the world.
Objective: To identify factors that influence sudden cardiac death (SCD) in patients with acute myocardial infarction (AMI).
Method: A retrospective study was performed at the *"Hospital Hermanos Ameijeiras Cardiocentro"*, from January/2007 to January/2016. The sample consisted of 465 patients with a diagnosis of AMI, divided into two groups, 79 deceased and 386 alive. Summary measures were used for quantitative and qualitative variables. Chi-square test was used to compare proportions.
Results: All of these factors were related to SCD in patients with AMI: hypertension (0.047), smoking (p<0.001), peripheral artery disease (p=0.002), dyslipidemia, arrhythmias (p<0.001), left ventricular ejection fraction <50% (p<0.001), increased end-diastolic diameter (53.0/11.0, p<0.001), non-ST elevation AMI (p=0.013), right coronary artery (p=0.011) and left main coronary artery (p=0.030) disease; as well as higher creatinine levels (p=0.006).
Conclusions: The clinical variables associated with the occurrence of SCD were: hypertension, smoking, peripheral artery disease, familial pathological history, and dyslipidemia. Arrhythmias, low ejection fraction, and increased left ventricular end-diastolic diameter were associated with SCD in AMI, where non-ST elevation AMI was more frequent. The right coronary artery and left main coronary artery disease, as well as high creatinine levels, were associated with SCD in these patients.
Keywords: Myocardial infarction, Sudden cardiac death, Mortality, Complications
Palabras clave: Infarto de miocardio, Muerte súbita cardíaca, Mortalidad, Complicaciones
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8. Cardiovascular pathology in organ procurement from uncontrolled non-heart beating donors

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Introduction: In 2012, the "code 41" protocol was started in Seville, aimed at procuring transplantation organs and tissues from individuals suffering uncontrolled out-of-hospital cardiac arrest. Apart from the family members' consent, it is mandatory to obtain judicial authorization, according to Spanish legislation. A forensic autopsy is performed after organs removal aiming to determine the cause and manner of death.
Method: This protocol implies the participation of a multidisciplinary team. The Forensic Pathology Department is in charge of examining the patient in the hospital, interviewing relatives and performing medical-legal investigation of death.

Results: During the period 2012-2015, 26 patients (88.5% males, age 41±11 years, interval 18-55, 31% under 35 years) were included in the protocol. In 17 cases (65.3%), uncontrolled cardiac arrest occurred at rest or during light physical activity. Death was from cardiovascular origin in all cases, 53.8% due to coronary atherosclerotic disease (1 case below 35 years), 3 cases (11.5%) due to arrhythmogenic cardiomyopathy and 2 cases (7.7%) due to viral myocarditis. Heart weight was above expected values (weight 436±91 g, interval 280-680 g). The application of the protocol allowed obtaining organs for transplantation.
Conclusions: Asystolic donation protocol has proved useful for obtaining organs and tissues for transplantation, death is arrhythmic and mostly related to coronary atherosclerosis.
Keywords: Death, Asystolia, Transplantation, Donors, Sudden cardiac death
Palabras clave: Muerte, Asistolia, Trasplante, Donantes, Muerte súbita cardíaca

9. Sudden death risk markers in young people with myocardial infarction

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Introduction: Although the incidence of myocardial infarction in young people is not high, morbidity, psychological effects and the risk of suffering another episode are important factors.
Objective: To identify whether there is a relationship between possible sudden death risk markers and its occurrence in young patients suffering acute myocardial infarction.
Method: Prospective observational study in 73 patients under 45 admitted between January 2011 and December 2014 at the "*Hospital Enrique Cabrera*", with a diagnosis of ST-segment elevation acute myocardial infarction. The appearance of sudden cardiac death was analyzed and it was associated to clinical, electrocardiographic and echocardiographic risk markers.
Results: The decrease in functional class, presence of rapid atrial fibrillation, increase in intraventricular conduction and left ventricular ejection fraction (LVEF) of less than 35% were associated with the onset of sudden death. In the multivariate analysis, this last variable behaved as an independent predictor in the occurrence of this event.
Conclusions: The selected markers were related to the appearance of sudden cardiac death in these patients. LVEF less than 35% was the best predictor for sudden cardiac death.
Keywords: Sudden cardiac death, Myocardial infarction, Young adult
Palabras clave: Muerte súbita cardíaca, Infarto de miocardio, Adulto joven

10. Sudden death due to aortic dissection

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Introduction: Aortic dissection is one of the cardiovascular causes of sudden death, so a thorough study of its morphology should help improve diagnosis.
Objectives: Clinical-pathological study in cases of sudden death secondary to aortic dissection.
Method: Thirty-four cases of sudden death by aortic dissection were studied in the Histopathology Laboratory of the Institute of Legal Medicine (1998-2015). Forensic autopsy was performed with complementary histological and toxicological studies.
Results: The 73% were men with a lower average age (42 years) than women (49 years). Heart weight was increased (88%) regardless of age, with a mean of 534 g, and was higher when there was dilatation of the aortic root (74%) or high blood pressure (53%). Cystic medial degeneration (57%) was associated with aortic enlargement ($p<0.05$) and bicuspid aortic valve, and both with younger age ($p=0.001$). It was not related with high blood pressure and left ventricular hypertrophy in older ages. Horizontal laceration was more frequent (66%) and DeBakey Type II predominated. Most of them died suddenly at home (66%), 61% from the previous known symptoms (51% of the total), was associated with chest pain (mainly precordial). The 40% had presented to the hospital a

day earlier and had been wrongly diagnosed.
Conclusions: Post-mortem study helps to better define the macroscopic and histological characteristics of the most severe cases of aortic dissection to improve its difficult diagnosis.

Keywords: Aortic diseases, Aortic dissection, Sudden death
Palabras clave: Enfermedades de la aorta, Disección aórtica, Muerte súbita