

oxygen demand/supply results in myocardial ischemia/infarction.[2,5] Moreover, cocaine causes endothelial injury, contributing to accelerated coronary atherosclerosis in long-term users.[1-4] Individuals with mild coronary disease may be predisposed to occlusive vascular spasm at the site of early atherosclerotic lesions.[1] Cocaine also blocks sodium/potassium channels, that may induce cardiac arrhythmias [2,4], which can be manifested with or without myocardial ischemia/infarction.[4] However, cocaine-induced myocardial ischemia/infarction provides a potential substrate for arrhythmias. Acute coronary events usually occur within minutes to hours after consumption [2,4], the risk being higher in the first 60 minutes after intake.[5] **Case report:** an otherwise healthy 39-year-old male, with history of cocaine consumption, suddenly collapsed at home. He was submitted to advanced life support, which was unsuccessful and was pronounced dead at the scene. Forensic autopsy revealed: cerebral edema; normal sized and rounded apex heart, with no apparent macroscopic changes of the

myocardium; coronary atherosclerosis (<25% of lumen obstruction); and petechial pulmonary hemorrhage with pulmonary edema and congestion. Histological examination revealed cardiac hypertrophy, signs of acute myocardial ischemia (4-12 hours of estimated time) and coronary atherosclerosis (lumen obstruction of 50%) with unstable plaques. Toxicological analysis revealed the presence of cocaine (levels above 4000 ng/ml) and its metabolites ecgonina methyl ester ( $619 \pm 188$  ng/ml) and benzoylecgonine (levels above 4000 ng/ml). **Discussion/Conclusion:** the direct cause of death was listed as acute myocardial ischemia caused by cocaine intake, in a victim with mild coronary atherosclerotic disease and unstable plaques diagnosed histologically. Mechanisms of acute myocardial ischemia resulting from cocaine intake are multifactorial: increased myocardial oxygen demand (increased heart rate and blood pressure), decreased blood flow (vasoconstriction, platelet aggregation/thrombosis, accelerated atherosclerosis) and/or cardiac arrhythmias.

**Keywords:** forensic autopsy, sudden death, cocaine, acute myocardial ischemia

### Keypoints:

Cocaine and its metabolites stimulate the sympathetic nervous system, leading to cardiotoxicity.

- The mechanisms of acute myocardial ischemia from cocaine intake are multifactorial.
- Acute manifestations of cocaine intake can occur within minutes to hours after its consumption.

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## POSTER 66

### Revisão literária de casos práticos resolvidos pela escrita manual, linguística forense e métodos computacionais

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### Resumo

**Introdução:** As Ciências Forenses (CF) são essenciais na resolução de casos criminais contemporâneos, embora

tenham sido aplicadas também a casos históricos [1]. Dentro desta área multidisciplinar, a Escrita Manual

(EM) objetiva averiguar a autenticidade e/ou autoria de manuscritos. A Linguística Forense (LF), analisa textos escritos com o objetivo de identificar características do estilo de um determinado autor que permitam aferir a probabilidade de esse autor ter produzido determinados textos suspeitos. Como suporte à análise, as duas áreas recorrem a Métodos Computacionais (MC), que auxiliam na ordenação dos possíveis autores [1]. **Objetivos:** Identificar casos de natureza criminal resolvidos com o auxílio individual da EM, da LF e de MC. **Material e Métodos:** Os termos “Forensic Handwriting Practical Cases”, “Forensic Linguistics Cases” e “Computational Methods” foram pesquisados na Wiley Online Library, PubMed (U.S. National Library of Medicine) e no Google Académico, sem limitação temporal. **Resultados:** A EM contribuiu para a resolução de vários casos, por exemplo, o caso “Harold Shipman”, um médico que assassinou e falsificou os testamentos dos pacientes e o caso “BTK Killer” onde os peritos analisaram as cartas questionadas tendo sido estas efetivamente escritas

pelo suspeito [3]. A LF, além do caso “Harold Shipman”, contribuiu por exemplo, para os casos “Jenny Nicholl” e “Danielle Jones”, cuja comparação de padrões idioletais permitiu confirmar que os suspeitos tinham falsificado as mensagens supostamente enviadas pelas vítimas. Caso idêntico foi o de “Amanda Birk”, cujo marido forjou um incêndio para encobrir o homicídio da esposa. A análise linguística de mensagens do telefone da vítima demonstrou que o seu estilo era consistente com o do marido. Para além destes, a LF tem sido utilizada em casos de terrorismo, como o “Gas Limo Project” [4]. Em questões de atribuição de autoria, os métodos computacionais foram utilizados para atribuir a autoria da obra literária “The Cucko’s Calling” a J.K. Rowling, que a tinha escrito sobre pseudónimo. [5] **Conclusões:** Cada uma das áreas científicas, individualmente, tem demonstrado aplicações práticas inquestionáveis em CF. A utilização combinada da EM, LF e MC pode vir a ser de extrema importância para uma nova abordagem científica que contribua assertivamente para investigações forenses.

**Palavras-chave:** Casos Reais; Ciências Forenses; Linguística Forense; Métodos Computacionais; Escrita Manual.

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## POSTER 67

### Intimate partner homicide

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#### Resumo

**Introduction:** Intimate partner violence is a public health concern that occurs across different socioeconomic, cultural, religious and age groups. It has significant economic and socio-familial impact, as well as serious effects on victim’s overall health, being homicide its most severe consequence. In Portugal, there were above 25.000 domestic violence police reports per year (2019-2021) and, regarding intimate partner homicides, there were 35 in 2019, 32 in 2020 and 23 in 2021. [1] The most common causes of death are gunshot injuries, sharp force injuries, blunt trauma and strangulation. [2-5] Separation is one of majors motives for homicide with almost 90% of women

killed by an ex-partner within four months of separation [5] up to the first year. [3] One-fourth of the victims had domestic violence history and, in a few cases, they have received death threats. [5] **Case report:** a 42-year-old female was admitted at the hospital with second and third degree flame burn injuries in about 80% of the body surface, after being assaulted by her ex-boyfriend with gasoline and fire, inside a car. She remained at the intensive care unit for four months, with progressive multiple organ dysfunction until she died. According to her sister, the intimate relationship was brief and there were several police reports for domestic violence against