

Sudden Death Syndrome in Young Males After Police Detention. Other Risk Factors

To the Editor:

After reading Martínez Sellés' interesting article¹ on sudden death syndrome (SDS) in young males following police arrest, we would like to make a few comments.

Although the author recognises the limitations of the study, considering the search strategy that was used, we feel that the term "systematic review" (SR)

is incorrect. An SR applies a scientific strategy for limiting findings during the process of collecting the essential information from primary research studies on a specific health problem. The article only reports the general syndrome of adaptation as a catecholamine-mediated reaction under highly stressful situations. It does not consider other risk factors that are related with sudden deaths following police arrest (also known as deaths in police custody). These deaths typically occurred during or after violent episodes in which police subdued individuals (struggling or fighting), and the following factors have been linked to death: agitated/excited delirium (AD), consumption of stimulants (cocaine and amphetamines), consumption of alcohol, the use of specific submission holds (particularly with obese individuals lying prone with or without the limbs immobilised, which is known as postural asphyxia) and pre-existing conditions (fundamentally cardiac and psychiatric)^{2,3}; none of the above, except for the pre-existing conditions, are mentioned in the article. Some of these risk factors (AD and stimulant consumption) can cause and worsen catecholamine-mediated reactions. In addition, the two strengthen each other mutually, particularly as regards AD and cocaine consumption effects on the myocardium.

As the author notes, such deaths require a judicial autopsy due to possible criminal liability because of the circumstances surrounding them (deprivation of liberty and police intervention). This in turn leads to a delay in learning the causes of death due to performing various types of complementary tests after the autopsy (mainly chemical-toxicological and histopathological) and gathering all information about the case.

While the author recognises that data from non-scientific publications has been collected, we disagree with the statement that it is not likely that there were more deaths than those included in the study. In our experience, many such deaths are not reported. It is difficult to determine the true magnitude of the problem, since the studies do not always coincide when determining the final cause of death, or when evaluating its aetiology. Neither is there any general agreement as to the concept of "death in custody," and as we observed previously, many factors can be involved in this physiopathological mechanism. In Catalonia, there were 4 deaths in police custody in 2006, for a rate of 0.6/million/year.

The author reports that 28.8% of cases have medical histories, all of which are related to substance abuse and psychiatric illness. He highlights a case in which methadone was administered before the individual's death, which should be considered due to the possible relationship between methadone treatment and sudden death.⁴

Due to the difficulties stated above, and in accordance with international torture-prevention protocols,⁵ the Institute of Legal Medicine of Catalonia (IMLC) created an internal action guide for the medical and forensic study of these deaths in 2007. The guide establishes the 4 following steps:

1. Preliminary study of the case, including:
 - Analysis of the scenario of events
 - Type of police intervention (type and length of struggle, type of immobilisation, posture assumed, type of resistance, moment in which resistance ceased); includes the use of paralysing or irritating substances (irritant sprays or TASER®-type paralysing electric pistols)
 - Medical intervention (place, type of reanimation, and other treatment measures)
 - Clinical history: above all, chronic/recent drug abuse (particularly cocaine), psychiatric history, state of agitation/aggressiveness, chronic diseases (cardiac), and obesity
2. Autopsy by 2 forensic doctors and preliminary conclusions.
3. Complementary tests (imaging, histopathology, and laboratory analyses)
4. Closing the case and issue of definitive conclusions regarding the cause and mechanism of death

In any case, we agree with the author's identification of the physiopathological role played by catecholamines released by the stress of the arrest in these deaths; however, this mechanism does not act alone, but rather in combination with other risk factors.

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REFERENCES

1. Martínez-Sellés M. Síndrome de muerte súbita tras detención policial en varones jóvenes. Un nuevo síndrome con posible origen cardiovascular. *Rev Esp Cardiol*. 2009;62:100-8.
2. Pounder DJ. Acute excited states and sudden death. *BMJ*. 1998;316:1171.
3. Sudden death during or immediately after a violent struggle. En: DiMaio VJ, DiMaio D, editores. *Forensic pathology*. 2.^a ed. Boca Raton: CRC Press. 2001. p. 500-6.
4. Chugh SS, Socoteanu C, Reinier K, Waltz J, Jui J, Gunson K. A community-based evaluation of sudden death associated with therapeutic levels of methadone. *Am J Med*. 2008;121:66-71.
5. Protocolo de Estambul. Manual para la investigación y documentación eficaces de la tortura y otros tratos o penas crueles, inhumanos o degradantes. Nueva York y Ginebra: Organización de las Naciones Unidas; 2001 [cite 12 Jun 2009]. Available from: http://www.unhcr.ch/pdf/8istprot_spa.pdf

Response

To the Editor:

We would like to thank Barbería-Marcailain et al for the comments and opinions which we also share. The limitations of our study were explained in detail in the article in which we describe sudden death syndrome in young males following police arrest.¹ We would like to point out that we only included sudden, unexplained deaths that occur in the first 24 hours following police arrest, of which nearly a third actually take place at the time of arrest; this is what distinguishes them from other deaths in custody. Therefore, we do not consider deaths secondary to trauma or drug intoxication, for example, to be unexplained, and we did not include them in our series.

Although there has been talk of the need in Spain for creating a record of all deaths in custody,² such a record is not available at present. It is for this reason that our article stated that "we cannot rule out the possibility that there have been more sudden and unexplained deaths following police arrest than those described."¹ The magnitude of the problem is unknown, but an indication that the problem may not be infrequent is found in a French medical-legal study of 49 autopsies for stress-related sudden deaths in which 4 cases (8.2%) were triggered by police arrest. Our hypothesis is that these arrests produce an abrupt increase in catecholamine levels. High levels of these substances are associated with stress-induced cardiomyopathy⁴ and in young males, this may trigger sudden death more easily. We agree that some factors in detainees (such as history and recent consumption of drugs) can contribute to the onset of the syndrome, but we do not agree that they are necessary in order for it to occur.

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REFERENCES

1. Martínez-Sellés M. Síndrome de muerte súbita tras detención policial en varones jóvenes. Un nuevo síndrome con posible origen cardiovascular. *Rev Esp Cardiol*. 2009;62:101-2.
2. Palomo Rando JL, Ramos Medina V, Santos Amaya IM. Muerte en privación de libertad (MPL). *Cuadernos de Medicina Forense*. 2004;35:37-50.
3. Lecomte D, Fornes P, Nicolas G. Stressful events as a trigger of sudden death: a study of 43 medico-legal autopsy cases. *Forensic Sci Int*. 1996;79:1-10.
4. Wittstein IS, Thiemann DR, Lima JA, Baughman KL, Schulman SP, Gerstenblith G, et al. Neurohumoral features of myocardial stunning due to sudden emotional stress. *N Engl J Med*. 2005;352:539-48.