



Response to the letter “Until all differential causes have been ruled out, aortic dissection should not be associated with chronic cocaine use”

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Dear Editor,

We read the letter wrote by Finsterer [1] in comment to the paper “Cocaine and aortic dissection: the need for collaboration to overcome the underreporting bias” [2]. Basically, in the letter four main points are issued as limiting the validity of the diagnosis posed by us as cause of death in the presented case (i.e. aortic dissection in a chronic cocaine and alcohol abuser). Comments received are summarized by the Author into the following four points:

- 1) *Causes other than cocaine use for aortic dissection.*
- 2) *Role of mode/frequency of cocaine abuse/use.*
- 3) *Relatives choice not to perform resuscitation.*
- 4) *Arterial hypertension treatment.*

Concerns arise with regard to each comment, specifically to their pertinency to the cause of death elucidation, as addressed following.

- 1) It is well known that medico-legal and forensic toxicological approach to death diagnosis is based on a complex and multidisciplinary synthesis of all available data, following a strict methodological algorithm structured on differential diagnosis. Such logical-deductive path allows forensic experts to exactly evidence key elements for the required death causes elucidation. Of course, we were well aware that aortic dissection can

be caused by the different genetic syndromes listed [1], but no clinical nor history or any other circumstantial data converged on their role in the described case. With respect to hypertension and the speculated hypertensive crisis (since such data cannot be available in sudden deaths of non-hospitalized subjects) as immediate and acute cause of aortic dissection, the causal role of acute cocaine intoxication in a chronic user constitutes, instead, an objective and irrefutable forensic datum. In fact, i)circumstantial evidence indicated chronic cocaine (and alcohol) abuse, ii)toxicological data highlighted an acute cocaine intoxication (and a recent alcohol intake) at death, iii)autopsy findings causally linked the previous two aspects. Author questions about the lack of a family history of *aortic aneurysm and ...sudden cardiac death* [1]. Apart from a mere clinical and anamnestic interest, family history itself does not constitute a key decision element to determine the cause of death and is rarely available to the forensic pathologist. Finally, regarding the absence of anatomical description of the aortic valve, as for genetic syndromes, all abnormalities were explicitly described by us. Therefore, aortic valve, as other ones, follows within the sentence “*All other organs and districts presented normal at external examination*” present at the end of Autopsy findings paragraph [2].

- 2) Deceased’s relatives only declared a chronic use of both cocaine and alcohol, so the question posed cannot be answered further, nor detailed information on the man’s belonging to a specific user group (“*regular party animal, being part of the techno scene or socially integrated subject*”...or “*opiate addicted, sexual habits, sexually transmitted infections*”) could have been useful for a more precise (in legal terms) definition of the cause of death. Are we really sure that social habits (“*patient socially integrated*” vs. “*party animal*”) have an impact

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on the cause of death? In our opinion damages deriving from chronic cocaine or other drugs of abuse can vary in relation to dosage, frequency, modality (sniffing, smoking, injection) or co-assumption of other toxic substances.

- 3) When the man was found unconscious and irresponsive, his relatives -whatever the motivation- promptly brought him to the closest hospital, looking for professional help.
- 4) We defined hypertension as untreated, because no documented pharmacological treatments were available, nor were they reported by relatives. In addition to this, data on responsiveness is exclusively available in a clinical setting. So, the two statements (“*the subject, while alive, was suffering from arterial hypertension, not treated pharmacologically*” and “*was under pharmacological treatment*”) are not in contrast.

Concluding, we strongly confirm the causal role of acute cocaine intoxication in the fatal aortic dissection

experimented by the man, and the need to corroborate the collaboration between forensic experts and clinicians *to overcome the underreporting bias*.

References

1. J Finsterer. Until all differential causes have been ruled out, aortic dissection should not be associated with chronic cocaine use Forensic Sci Med Pathol. 2025. <https://doi.org/10.1007/s12024-025-00994-w>
2. P Basilicata A Lombardi M Marisei E Capasso A Simonelli M Pieri. Cocaine and aortic dissection: the need for collaboration to overcome the underreporting bias Forensic Sci Med Pathol. 2025. <https://doi.org/10.1007/s12024-025-00951-7>

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