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EDITORIAL ARTICLE

Forensic intervention in the Valencia floods of October 2024[☆]

Intervención médico-forense en las inundaciones de Valencia de octubre de 2024

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On October 29, 2024, the meteorological phenomenon known as the Isolated High-Level Depression (ILD) caused severe damage in the communities of Valencia, Castilla-La Mancha, and Andalusia, communities in eastern Spain along the Mediterranean Sea. According to EMDAT (The International Disaster Database), maintained by the University of Leuven, the phenomenon resulted in 232 deaths.¹

This issue of the Revista Española de Medicina Legal (REML) publishes two special articles on forensic intervention in the floods caused by ILD in Valencia. The article by Colorado et al. provides a detailed analysis of all the organisational aspects of the Institute of Legal Medicine and Forensic Sciences (IMLCF for its initials in Spanish) in Valencia,² while Rodero's article provides a more personal account of the event's impact on the IMLCF in Valencia.³

We would like to offer our congratulations to all the professionals at the Valencia IMLCF for the excellent work carried out in the forensic approach to the tragedy, which was also supported by 32 professionals from other IMLCFs in the Autonomous Community and 91 from the rest of Spain. We would also like to thank the authors for sharing their

experiences with us, as they are a source of knowledge and training that will undoubtedly be of great use to all those involved in situations as tragic as those that occurred on October 29, 2024, in Valencia. This has been the case with other events that have enabled us to learn from past experiences, including the 2004 Madrid 11-M attacks,⁴ the 2004 Thailand tsunami,⁵ the 2008 Spanair plane crash at Barajas Airport,⁶ the 2010 Castelldefells train crash,⁷ the 2017 attacks in Catalonia 2017⁸ and the 2016 Freginals (Tarragona) bus accident.⁹ REML has been open to sharing this knowledge, as it did in the 2023 monograph dedicated to events with multiple victims and catastrophes, with articles on forensic odontology,¹⁰ forensic genetics,¹¹ and psychological care in incidents with multiple victims.¹² Colorado et al. state that there were 224 deaths, the catastrophic event with the highest number of deaths in the recent history of Spain, exceeding the number of deaths from the attacks of March 11, 2004 in Madrid.⁴ Historically floods in Spain have been the catastrophic event with the greatest impact on mortality.¹³ The floods in Valencia due to the 2024 ILD have been considered the floods with the highest number

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of deaths in Spain since 1973 and the tenth deadliest floods in Europe since 1900.¹⁴ As the authors point out, the high number of deaths, the extension and geographical dispersion of the event (which included 10 judicial districts) and the fact that it was an open catastrophe¹⁵ posed a major challenge for the IMLCF of Valencia's response.

Once the IMLCF was activated in the early hours of 30 October 2024, the application of the National Protocol for Medical-Forensic and Scientific Police Action in Events with Multiple Victims¹⁶ was quickly decreed, and so too was the establishment of the Data Integration Centre (DIC) in the City of Justice in Valencia. The IMLCF of Valencia was able to apply both its Forensic Action Plan in cases with multiple fatalities, as established in art. 24 of the IMLCF Regulations of 2023,¹⁷ and the National Protocol, which they had already just applied a few months earlier, in February 2024, following the death of 10 victims in a fire in an apartment building in the city of Valencia.

The article by Colorado et al.² addresses in detail the organisation of the body removal teams (describing the professionals who comprised them, as well as numbering and labelling, which is a critical aspect in these events) and the work in the morgue area with different zones (initially in the facilities of the IMLCF itself, with expansion on October 30 to the Trade Fair, the area for the conservation and custody of the bodies already studied), with a peak of 83 autopsies on October 31. It also explains the collection of samples for genetic studies in all cases. These samples were managed by the State Security Forces and Corps (FFCCSE for their initials in Spanish) based on their territorial jurisdiction, although without the participation of the National Institute of Toxicology and Forensic Sciences, which, in accordance with the National Protocol (art. 34.1.a), must act as the reference laboratory.¹⁶

The DIC, composed of FFCCSE members and the IMLCF itself, met in person until November 12, 2024. It was responsible for comparing the post-mortem information obtained from the autopsies with the ante-mortem information (obtained from the Ante Mortem Offices, initially two, which later had to be expanded to five) and transmitting the information to the press office of the High Court of Justice of Valencia on the number of bodies studied, identified, and delivered. It was also responsible for communicating the identified bodies to the mortuary area. Regarding identification, a salient decision was that of using primary identification elements (dentistry, DNA, and/or lofscopy), compared with secondary elements, and of issuing a joint identification report from the FFCCSE and IMLCF, which was sent to the Investigating Court along with the autopsy report, in accordance with the provisions of Article 37 of the National Protocol.

Colorado et al. emphasize the absence of a computer programme or application that would have enabled the information generated in the different phases to be entered. We are aware that the National Technical Commission on Multiple Victim Incidents, which addressed the IMLCF and FFCCSE's actions in the DANA at the 20th Plenary Session of December 18, 2024, is working on this aspect, evaluating some options. A well-known one is the KMD PlassData DVI® software,¹⁸ which was used in the identification of the 1,200 victims of the terrorist attacks against Israel on October 7, 2023.¹⁹ They also refer to the importance of secondary

elements, given their great value in reinforcing the primary elements or acting as the beginning of identification work whilst guiding the investigations of the primary elements. They mention forensic dentistry as one of the primary elements that must be considered from the outset, and whose information retrieval must also be included in the collection of ante-mortem data. It is unfortunate that, despite the efforts made to deploy forensic dentists and their work in collecting post-mortem data, no victims could ultimately be identified using this method. The most common method in Spain was fingerprint identification, either in isolation (64.7%) or in conjunction with DNA (77.2%).

We wish to emphasize the importance of training in these types of situations. Articles such as those presented by Colorado et al. and Rodero can therefore be invaluable material to accompany the various courses, workshops, and simulation sessions, which are so necessary in the optimal preparation for catastrophic situations. Finally, we wish to express our sincere gratitude and appreciation to all those who participated in the many response efforts following the ILD (DANA) disaster in Valencia, from those who carried out their professional work to all those who selflessly helped, and who continue to do so months later.

Conflict of interests

The authors have no conflict of interests to declare.

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