

GRUPOS DE TRABAJO

The Poisoning Working Group of the Spanish Society of Pediatric Emergency Medicine: over 20 years walking together

Beatriz Azkunaga¹, Lidia Martínez², Juan Carlos Molina³, Santiago Mintegi¹ and the Poisoning Working Group of the Spanish Society of Pediatric Emergency Medicine

¹Hospital Universitario Cruces. Barakaldo, Bizkaia. ²Hospital Sant Joan de Déu. Barcelona. ³Hospital Infantil Universitario Niño Jesús. Madrid

The Poisoning Working Group of the Spanish Society of Pediatric Emergency Medicine (GTI-SEUP, according to the Spanish abbreviation) currently comprises 59 hospitals across Spain. Its origins can be traced back to 2001, when Dr. Mintegi of Cruces University Hospital, a pediatric emergency physician with extensive research experience in the field of poisonings and the first coordinator of the GTI-SEUP, led a multicenter study involving 17 Spanish hospitals. This study provided valuable insights into the epidemiology and management of poisonings in Pediatric Emergency Departments (PED) in Spain⁽¹⁾.

In this study, poisoning accounted for 0.28% of all ED visits, with two distinct age groups identified. The first and largest group consisted of preschool children who ingested potentially toxic substances, mainly drugs, unintentionally due to their natural exploratory behavior. The second group comprised patients over 12 years of age who voluntarily came into contact with substances, either for recreational purposes –mainly alcohol and/or illegal drugs– or, to a lesser extent, for suicidal purposes through drug ingestion. In addition, this initial study identified variability in the management of poisoned pediatric patients across the different hospitals included in the study, as well as deficiencies in this management⁽¹⁾.

TOXICOLOGY OBSERVATORY

Created in October 2008 and initially comprising 37 pediatric emergency departments, the Toxicology Observato-

ry was designed to better understand the epidemiological trends of pediatric poisonings and their management in EDs. The first analysis was conducted one year after its implementation, revealing the global characteristics of childhood poisonings, the most frequent mechanisms of poisoning, and the main substances involved⁽²⁾.

Subsequent studies have clarified various aspects of poisonings, from defining profiles⁽³⁾ to describing the predominant poisonings in each age group. In 2012, an analysis of poisonings in children under 7 years of age⁽⁴⁾ revealed significant differences based on the substance involved, such as drugs or household products. Later studies indicated that these substances were often not stored safely or kept out of children's reach, increasing their danger⁽⁵⁾.

On the other hand, the Observatory has also noted changes in poisonings in childhood, such as the substitution of benzodiazepines⁽⁶⁾ for paracetamol as the main drugs involved globally, and the variability of toxic substances according to territories within Spain⁽⁷⁾. This variability makes it easier to identify specific measures to be developed for each territory. Additionally, there has been an increase in alcohol intoxications⁽⁸⁾ among adolescents and preadolescents in the first decade of the creation of the GTI-SEUP, a concerning trend and a priority for decision-making by health managers, educators, and the families themselves. In this same group, about 9% had also had contact with illegal substances, especially cannabis.

Nevertheless, regarding intoxications by illegal drugs, a worrisome finding by the GTI-SEUP in 2016 was that about half of the intoxications by illegal drugs, especially cannabis, involved children under 3 years of age, probably exacerbated by the increasing use of such substance in the society in recent years⁽⁹⁾.

Regarding the management of poisoning, the Toxicology Observatory has studied aspects related to the healthcare offered to the patient at the prehospital and hospital levels⁽¹⁰⁾, particularly focusing on specific treatments such as

Received on June 27, 2024

Accepted on July 1, 2024

Corresponding author:

Dra. Beatriz Azkunaga

E-mail: BEATRIZ.AZCUNAGASANTIBANEZ@osakidetza.eus

gastrointestinal decontamination⁽¹¹⁾ or the administration of antidotes⁽¹²⁾.

Finally, it should be mentioned that the Toxicology Observatory has also facilitated monitoring changes in poisonings in special situations, such as the recent global health emergency caused by the SARS-CoV-2 pandemic and the observed increase in poisonings with suicidal intent afterwards^(13,14). Furthermore, it has served as a model for international toxicological research^(15,16).

QUALITY IMPROVEMENT: QUALITY INDICATORS AND “DO-NOT-DO” ACTIONS

In 2010, the SEUP Poisoning Working Group, led by Dr. Martínez of the Hospital Sant Joan de Déu, developed Pediatric Quality Indicators (QI) for the Emergency Healthcare of Patients with Suspected Poisoning. Twenty QIs, of which six were considered basic, were analyzed. After identifying deficiencies, corrective measures were implemented, including the creation in 2011 of a follow-up group for gastric lavage cases reported to the Toxicological Observatory and the publication in 2012 of the 3rd edition of the *Pediatric poisoning manual*, which included protocols for the most frequent and severe intoxications. Subsequently, the impact of the improvement actions was assessed through the QIs, and improvements in their results were observed⁽¹⁷⁾.

With the intention of enhancing patient care, the GTI-SEUP compiled a list of actions that should not be taken in cases involving contact with potential toxic substances. This initiative aims to improve the quality of care by preventing unnecessary measures that can sometimes harm the patient⁽¹⁸⁾.

SOURCES OF INFORMATION: PEDIATRIC POISONING MANUAL AND TOXSEUP

As mentioned earlier, the 3rd edition of the *Pediatric poisoning manual* was published in 2012 as a tool to facilitate information searches. However, years later, the GTI recognized the need to adapt to modern times and new medical practices, such as the use of electronic devices for efficiency in information retrieval. With the aim of adopting current and universally accessible tools, TOXSEUP was launched, a project led by Dr. Molina of Hospital Universitario Niño Jesús. TOXSEUP is a web-app developed to provide information in cases of potential drug intoxication.

In short, the work of the GTI-SEUP over all these years has focused on the development of various initiatives aimed at improving quality care for pediatric patients treated in EDs following potential poisoning incidents. To achieve this, in-depth knowledge of the epidemiology of pediatric poisoning in Spain through the Observatory of Toxicology was considered necessary. In addition, the management of poisoned patients has been extensively analyzed using QIs, supported by resources such as the do-not-do actions for a poisoned patient, the *Pediatric poisoning manual*, and the web-app TOXSEUP, tools available to all healthcare providers who treat poisoned children.

Finally, it should be noted that none of these achievements would have been possible without the collaboration of every member of the SEUP Poisoning Working Group, including those who were part of it from the outset and later followed other paths in their professional careers, as well as those who have joined this project more recently. Through their contributions, perseverance, and dedication, they have enabled the analyses presented in this article for the benefit of our children. Moreover, they serve as the foundation for new projects currently underway (Annex 1).

REFERENCES

- Mintegi S, Fernandez A, Alustiza J, Canduela V, Mongil I, Caubet I, et al. Emergency visit for childhood poisoning: a 2-year prospective multicenter survey in Spain. *Pediatr Emerg Care*. 2006; 22(5): 334-8.
- Azkunaga B, Mintegi S, Bizkarra I, Fernández J; The Intoxications Working Group of the Spanish Society of Pediatric Emergencies. Toxicology surveillance system of the Spanish Society of Pediatric Emergencies: first-year analysis. *Eur J Emerg Med*. 2011; 18(5): 285-7.
- Paula Santiago P, Bilbao N, Martínez-Indart L, Mintegi S, Azkunaga B; Intoxications Working Group of the Spanish Society of Pediatric Emergencies. Epidemiology of acute pediatric poisonings in Spain: a prospective multicenter study from the Spanish Society of Pediatric Emergency Medicine. *Eur J Emerg Med*. 2020; 27(4): 284-9.
- Azkunaga B, Mintegi S, Salmón N, Acedo Y, Del Arco L; Grupo de Trabajo de Intoxicaciones de la SEUP. Intoxicaciones en menores de 7 años en España. Aspectos de mejora en la prevención y tratamiento. *An Pediatr (Barc)*. 2013; 78(6): 355-60.
- Bilbao N, Santiago P, Azkunaga B, Mintegi S; Grupo de Trabajo de Intoxicaciones de la Sociedad Española de Urgencias de Pediatría. Intoxicaciones agudas no intencionadas asociadas a recipientes no originales. *An Pediatr (Barc)*. 2016; 85(2): 102-4.
- Zubiar O, Salazar J, Azkunaga B, Mintegi S; Grupo de Trabajo de Intoxicaciones de la SEUP. Ingesta de psicofármacos: causa más frecuente de intoxicaciones pediátricas no intencionadas en España. *An Pediatr (Barc)*. 2015; 83(4): 244-7.
- Salazar J, Zubiar O, Azkunaga B, Molina JC, Mintegi S; Grupo de Trabajo de Intoxicaciones de la Sociedad Española de Urgencias de Pediatría. Diferencias territoriales en las intoxicaciones agudas en menores de 14 años en España. *An Pediatr (Barc)*. 2015; 82(1): e39-43.
- Azkunaga B, Mintegi S, Del Arco L, Bizkarra I; Grupo de Trabajo de Intoxicaciones Sociedad Española de Urgencias de Pediatría. Changes in the epidemiology of poisonings attended in Spanish pediatric emergency departments between 2001 and 2010: increase in ethanol intoxications. *Emergencias*. 2012; 24: 376-9.
- Azkunaga B, Crespo E, Oliva S, Humayor J, Mangione L. Intoxicaciones por droga ilegal en niños de corta edad en los servicios de urgencias pediátricos españoles. *An Pediatr (Barc)*. 2017; 86(1): 47-9.
- Salazar J, Zubiar O, Azkunaga B, Molina JC, Mintegi S; Grupo de Trabajo de Intoxicaciones de la Sociedad Española de Urgencias de Pediatría. Atención prehospitalaria en las intoxicaciones agudas pediátricas en España. *Emergencias*. 2017; 29(3): 178-1.
- Velasco R, Palacios M, Salmón N, Acedo Y, Del Arco L, Azkunaga B, Mintegi S; Intoxication Working Group of Spanish Society of Pediatric Emergencies. Impact of a working group on gastroin-

- testinal decontamination in Spanish emergency departments. *Eur J Emerg Med.* 2014; 21(3): 195-8.
12. Serrano I, García M, Mintegi S, Azkunaga B; Grupo de Trabajo de Intoxicaciones de la Sociedad Española de Urgencias de Pediatría. Idoneidad de los antidotos administrados en los servicios de urgencias pediátricos en España. *Emergencias.* 2021; 33(6): 479-81.
 13. Azkunaga B, Echarte P, Zumalde A, Mintegi S. Intentional self-poisoning increase in the emergency department in Spain during the COVID-19 pandemic. *An Pediatr (Barc).* 2023; 98(1): 67-9.
 14. Algarrada Vico L, Martínez-Sánchez L, Baena Olomí I, Benito Caldés C, Rodríguez Varela A, López-Corominas V, et al. Estudio multicéntrico sobre las características sociales, epidemiológicas y clínicas en las intoxicaciones con finalidad suicida en adolescentes. *Emergencias.* 2024 [En prensa].
 15. Mintegi S, Azkunaga B, Prego J, Qureshi N, Dalziel SR, Arana-Arri E, et al; Pediatric Emergency Research Networks (PERN) Poisoning Working Group. International epidemiological differences in acute poisoning in paediatric emergency departments. *Pediatr Emerg Care.* 2019; 35(1): 50-7.
 16. Mintegi S, Dalziel SR, Azkunaga B, Prego J, Arana-Arri E, Acedo Y, et al; Pediatric Emergency Research Networks (PERN) Poisoning Working Group. International variability in gastrointestinal decontamination with acute poisoning. *Pediatrics.* 2017; 140(2): e20170006.
 17. Martínez L, Trenchs V, Azkunaga B, Nogué S, Ferrer N, García E, et al; Grupo de Trabajo de Intoxicaciones de la SEUP. Impacto de acciones de mejora desarrolladas a partir de indicadores de calidad en el tratamiento de las intoxicaciones agudas pediátricas. *Emergencias.* 2016; 28(1): 31-7.
 18. Martínez-Sánchez L, Angelats-Romero CM, Azkunaga-Santibañez B, Barasoain-Millán A, López-Ávila J, Molina-Cabañero JC, et al. Acciones que no hay que hacer ante un paciente que ha contactado con un posible tóxico. *An Pediatr (Barc).* 2021; 94(5): 285-92.

ANNEX 1. Members of the SEUP Poisoning Working Group.

- H.U. Tajo: C.M. Hinojosa Mateo
- H. Quirón Bizkaia: P. Oliver
- H.U. Arnau de Vilanova: N. Pociello
- H.U. Basurto: I. Rodríguez Albarrán
- H. Cabueñes: P. Rodríguez, A. García, M. Morán
- H.U. Carlos Haya: S. Oliva
- C.H. Navarra: M. Palacios, N. Clerigué
- C.H. Jaén: T. Del Campo
- C.A.U. León: A.G. Andrés, M. Muñiz
- C.S. Parc Taulí: I. Baena, S. Bajja
- H.U. Cruces: S. Mintegi, J. Ramirez, J. Askaiturrieta
- H.U. Doce de Octubre: S. Mesa
- H.U. Donostia: J.A. Muñoz, I. Muñoz
- H.U. Dr. Peset: A. Rodríguez
- H. Francesc de Borja: C.M. Angelats, I. Villaplana
- Fundació Sant Hospital de la Seu d'Urgell: J. Astete
- H.U. Fundación Alcorcón: A. Barasoain
- H.U. Gregorio Marañón: P. Vázquez
- H. Infanta Cristina: M.D. Rodríguez
- H. Infanta Elena: T. Gómez C, Nuñez
- H. Terrassa: F. Doménech
- H. Laredo: A. Jorda, B. Vega
- H. Mendaro: L. Herrero
- H.U. Mutua Terrassa: A. Pizzá
- H.U. Niño Jesús: J.C. Molina
- H. Materno-Infantil Las Palmas de Gran Canaria: L. Mangione
- H. Materno-Infantil Badajoz: L. Ramiro
- C. Asistencial Ávila: S. De Pedro
- H. Montepíncipe, H. Sanchinarro, H. Torrelodones, H. Puerta del Sur: I. González
- H. Príncipe de Asturias: M.A. García
- H.U. Puerta de Hierro: C. Benito, P. Armero
- H. Rey Juan Carlos: G. Sabrido, P. Bello
- H.U. Río Hortega: I. Bullón
- H. Sant Joan de Dèu, Xarxa Hospitalaria i Universitaria de Manresa, Fundació Althaia: E. Botifoll, Z. Lobato
- H.U. Sant Joan de Déu: L. Martínez Sánchez, C. Luaces, L. Algarrada
- H. San Pedro: L. Martínez
- H.U. Salamanca: J. López
- H. Virgen de la Salud: E. Aquino
- H. Zumárraga: A. Pérez
- H.U. Politécnico La Fe: R. Señor
- H. Mataró: J. Baena
- H.U. Marqués de Valdecilla, H. Sierrallana: A. Peñalba
- H. Gernika-Lumo: A. Alday
- H. Miguel Servet: C. Campos
- H.U. Son Espases: V. López
- C. Asistencia Soria: N. Muñoz
- H. Infantil La Paz: B. De Miguel
- Hospital C. U. Valencia: P. Khodayar
- H. Severo Ochoa: A.M. Angulo
- HU General de Villalba: E. Casado
- HU Santa Lucía: M.E. Ordoñez
- HU Virgen del Rocío: I. Martínez
- Hospital Infanta Leonor: A.N. Angulo
- HU Central de Asturias: R. Fernández
- H. de la Santa Creu i Sant Pau: I. Cinta