EDITORIAL

Pediatric toxicology in the emergencies department

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In the United States (USA) the American Academy of Clinical Toxicology was established in 1968, and six years later it established the Board of Medical Toxicology. Subsequently, Medical Toxicology was recognized as medical subspecialty (or Specific Training Area to use the terminology of Spanish law) in 1992 by the American Board of Medical Specialties. It is subspecialty that can be accessed from Pediatrics, Preventive Medicine and Accident and Emergency Medicine (EM). Besides medical toxicology, after specializing in EM one can access another five subspecialties: Intensive Care, Emergency Medical Systems (EMS) (adopted in 2010), Pediatric Accident and Emergency Medicine, Sports Medicine and Sub-aquatic and Hyperbaric Medicine. Moreover, during the current EM residency program in USA and Canada, residents perform a one-month rotation in Clinical Toxicology unit or a Poison Center. Apart from the curious paths along which the current Spanish Health Ministry officials want to take EM[1], contrary to what has been proven to work well beyond our borders[2], the necessary relationship between Clinical Toxicology and EM is increasingly evident[3]. A clear example of this can be seen in this issue of EMERGENCIAS, which contains three original papers on aspects of clinical toxicology in pediatric patients[4-6].

Although young children who accidentally ingest drugs constitute the bulk of pediatric poisoning treated in EDs, we must not forget there is increasing multi-drug consumption by adolescents for autolytic purposes, in which paracetamol again takes center stage and where early diagnosis is the cornerstone of patient management and prognosis. In their study, Martínez Sánchez et al. clinically assess a urine screening method to identify paracetamol poisoning[4]. This simple approach provides a new way to evaluate one of the most common drug poisonings in children and adults, and it reduces costs, length of stay, medical personnel workload and iatrogenic harm. The study provides a diagram to be used in cases of doubtful intake, which simplifies clinical management in some patients. The fact that it is a retrospective study, and that it did not involve measuring plasma levels of paracetamol, does not detract from the value of its conclusions. In our opinion, the work also highlights the necessary collaboration between different professionals involved in emergency assistance, in this case pediatricians and laboratory analysts, and, as usual, the Castanyer and Barceló group provides simple analytical solutions to common clinical problems, as they have already done before with the analytical assessment of continuous intakes of paracetamol when the Rumack-Matthew nomogram is not applicable[7].

The use of toxic substances is one of the "rites of passage" typical of adolescence, a period characterized by turbulent transformations, leading to profound ideological and behavioral changes. This makes young people more vulnerable. In recent years there has been a progressive increase in the incidence of toxic habits in adolescents, at increasingly early ages, with new forms of consumption[8] and new drugs[9]. The study by Azkunaga et al[5] will leave few readers indifferent. First, for the significant increase in emergency visits for alcohol poisoning in the pediatric population, double the figure of 10 years ago, and at an earlier age. These data confirm the trends reported in the EDADES and ESTUDES surveys conducted within the National Drug Plan, with particular concern about the phenomenon of “el botellon” and binge drinking[10,11]. Second, for its methodology, which takes advantage of new technologies to perform a prospective study on-line with astonishing immediacy. And third, for the strength and trajectory of the Toxicology Group of the Spanish

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Society of Pediatric Emergencies, with their wonderful epidemiological tool - the Toxicology Observatory[12]. The use of alcohol by adolescents entails several risks and implications: for personality, intellectual and cognitive development, increased likelihood of accidents, and the phenomenon of chemical submission. A recent meta-analysis shows that alcohol consumption is an independent risk factor for unprotected sexual intercourse, and is directly related to the transmission of HIV and other sexual diseases[13]. The impact of the teenage practice of mixing energy drinks (high in caffeine) with alcohol[14] and its clinical implications remain to be determined, but these aspects are raising interest and alarm in different socio-medical professionals, including pediatricians[15].

The work by Martínez Sánchez et al shows that pediatric toxicological assistance has improved, with less gastric lavage and improved indications for the early use of activated carbon (AC)[5], which follows the trends observed in previous studies in adults[6,7]. However, like those, it also found poor recording of event-to-care intervals, which is most probably related to chronic pressure faced by hospital EDs, and does not necessarily mean low quality assistance. In the work of Martínez Sánchez et al[6], as in the doctoral theses of Puiguiriguer[16] and Martin Perez[17], the calculation of certain toxicological quality indicators under real conditions may make us reconsider the level of the proposed standard and even the indicator itself, as part of the cycle of continuous quality improvement. As indicated by the authors, studying a motivated sample of EDs in terms of toxicological assistance and quality could lead to overestimating the positive results, but their study does indicate a trend that is probably not exclusive to the participating centers and opens the door to improving certain aspects. In any case, what is not measured is not known and therefore outside clinical control. It remains to be seen whether the new AC presentations (essentially for household first aid kits) about to be launched on the Spanish market will improve prehospital availability and early administration, and thus reduce hospital attendances and event-to-care delays, without increasing the side effects of misuse[18,19].

Last, but no less important, a joint reading of these works allows us to draw an important conclusion: only by research networks of EDs and collaboration between professionals, workgroups and related scientific societies, will we improve the quality of EM research in general and clinical toxicology in particular.

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