

# Autointoxication – from caregiver frustration toward research challenge

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## ABSTRACT

**Autointoxications are among the most common medical emergencies. Patterns of toxicosyndromes show regional variation, and they change over time. Intoxications are usually multiple. Although autointoxication is often self-limiting and a fatal outcome is unusual, suicide attempts may kill. Toxicity screening, emergency room first aid, decision rules for admission to the Ward or the ICU, or prolonged observation in the Emergency Department, and measures to prevent gastrointestinal substance resorption are based on expert opinion rather than scientific evidence. Toxicity screening needs regular adjustment and should be individually tailored, based on local patterns as well as on clinical syndromes. A team approach and efforts to study safe management strategies should turn caregiver frustration into a more enthusiastic and inquisitive attitude towards the challenges to meet the medical needs of these patients.**

This issue of the Journal contains two contributions on different aspects of autointoxication. Drug-related problems including autointoxication and drug overdose or abuse are common; they comprise 4% of all cases presenting to emergency departments of teaching hospitals.<sup>1</sup>

Autointoxication was by far the most frequent diagnosis made by residents in internal medicine during after-office hours in the Groningen University Hospital.<sup>2</sup> Although regularly confronted with autointoxication, many internists have a sense of frustration with every new patient brought in. This patient group usually survives anyway.<sup>3,5</sup> Health workers find it difficult to sympathise with their self-inflicted injuries. Moreover, their basic problem is a mental, not a

physical condition. The expertise needed to manage the underlying condition lies in the field of psychiatry, and not internal, emergency or intensive care medicine. Despite psychiatric interventions, attempted suicide is often followed by repeated attempts that may eventually be fatal.<sup>6</sup> Indeed, in younger age groups, attempted suicide including auto-intoxication with an array of pharmaceutical products and abuse of 'recreational' drugs, is a leading cause of death.<sup>7</sup> Today, we try to anchor our teaching and training in internal medicine on a basis of scientific evidence. For the sake of transparency and accountability towards patients, and to prevent mistakes and mishaps, as well as to improve the teaching process, many diagnostic and therapeutic decisions are now based on protocols and guidelines. Local protocols are in turn based on evidence-based guidelines published in the literature by expert committees from national and international scientific organisations.

Clinical toxicology is difficult to manage by guidelines because of the vast array of toxicosyndromes and an even longer list of different toxic agents. Its knowledge base is built on various and numerous case reports, and prospective randomised trials in patients are scarce. Even if certain intoxications were common, randomised studies would be difficult to conduct as consent cannot be obtained from patients with impaired consciousness. Yet certain general principles apply to the majority of cases of intoxication. One such example of the general management of victims of autointoxication by ingestion includes measures to prevent further resorption of toxic substances from the intestinal tract. Gastric lavage, activated charcoal and whole bowel lavage have such potential advantages, but there are also potential adverse effects, including the risk of aspiration of gastric lavage fluid and activated charcoal into the airways in patients with impaired consciousness.

To prevent aspiration, intubation of the airway would seem to be a good idea, but this strategy is possibly unnecessarily aggressive for mildly intoxicated patients, and risks incurred by anaesthesia should be considered. The available evidence suggests that potential benefit of gut decontamination cannot be expected if these measures are delayed until 30 to 60 minutes after ingestion.<sup>8-10</sup>

Intoxication does not necessarily happen at one point in time but may take several hours and the time of ingestion is often unknown. In one study, 63 patients with serious auto-intoxication requiring admission to hospital could report the time of ingestion. Only 15 (24%) of these patients presented within one hour after their intoxication.<sup>11</sup> Activated charcoal was given to ten of these 15 patients, but only four received the compound within one hour after auto-intoxication. Gastric lavage,<sup>12</sup> whole bowel lavage<sup>13</sup> and activated charcoal<sup>14-15</sup> have all been addressed in international guidelines,<sup>16</sup> but these are based on low-level or controversial evidence.<sup>17,18</sup> Many of the guideline-derived recommendations are poorly adhered to,<sup>19</sup> possibly because they may be impractical.

Guidelines for decision-making in diagnostic screening, for admission to the ward or to the intensive care unit, with intubation and mechanical ventilation, or haemodialysis, or specific antidotes are even more controversial. Very few studies have addressed these case management problems,<sup>20</sup> and there is clearly a need for more scientific evidence to guide decisions. For some interventions, such as the infusion of sodium bicarbonate to victims of tricyclic antidepressant overdose,<sup>21,22</sup> the evidence may be low but the treatment is cheap and relatively harmless, while the potential benefit is great and therefore does not seem to justify expensive research.<sup>23</sup>

By necessity, guidelines result from consensus among experts who review and interpret the available scientific evidence. The process of finding consensus is slow and a guideline may not always be applicable in all areas in the world. There are huge differences in patterns of auto-intoxication between regions in the world.<sup>24-26</sup> Patterns of common toxic syndromes may also change over time, with the newly recognised toxicity patterns of recreational drugs such as ecstasy (MDMA) and gamma-hydroxybutyrate (GBH).<sup>27-29</sup> The report by Vermees *et al.* (page 168 of this journal) from the Erasmus Medical Centre in Rotterdam is therefore useful as it reflects an inner city toxic syndrome epidemiology and serves as an update that may help other centres to adapt and improve their screening procedures. International standards and guidelines may be helpful but toxicity screens that apply in one area in the world need not necessarily apply in other areas, and regular updates are necessary to correct for changing patterns in intoxication over time.<sup>30,31</sup> Drug screening should rather be targeted specifically to the clinical presentation (the 'toxic syndrome')<sup>32</sup> combined with usual patterns derived from relevant

regional occasional surveys such as the Rotterdam survey. The report by Meulendijks *et al.* (page 164 of this journal) from the University Medical Centre St Radboud in Nijmegen, is a useful initiative to help design a general guideline for the management of victims of auto-intoxication in the emergency department. In their study population, many patients could be discharged home safely after an observation period of four to six hours in the emergency department. Their intoxications were mild, predominantly with benzodiazepines which apart from sedation and hypoventilation have a relatively mild toxicity profile. The authors rightly mention that their decision-making guideline should be validated in a prospective multicentre study. The management of common problems calls for increased research efforts. Intoxications are common diagnoses, and their treatment deserves a cost-effective management strategy based on scientific evidence. Funding should come from national scientific research grants such as Zon-NW (the Netherlands Medical Sciences Care Trial).

Meanwhile, patients with auto-intoxication deserve our care and commitment. Their mental problems and social behaviour challenge our professional attitude. Also, our clinical skills are challenged in suspecting and detecting the causes of their syndrome. Many patients have ingested multiple toxic substances,<sup>33</sup> and laboratory results should be interpreted with great care. Treating these patients does not need to be frustrating – their treatment is far from futile. Their self-inflicted injury may cause them to die from complications but their short-term prognosis is excellent, provided that treatment is adequate.

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