
1. Emergency Triage of the Poisoned Patient: A Toxicology Risk Assessment in 5 Minutes

Gunja N 1, 2

1NSW Poisons Information Centre, Sydney; 2Emergency Department, Westmead Hospital, Sydney, Australia

Introduction: Triage of the patient presenting to the Emergency Department (ED) has evolved considerably over the last two decades. Since its inception, triage systems have continued to develop and be modified into ever more useful tools in early recognition of the acutely ill. Common systems used around the world in triaging emergency patients are the Australasian Triage Scale (ATS) and the Manchester Triage System (MTS). Applying this to the poisoned patient, triage aims to risk stratify a given overdose or envenomation to prevent clinical deterioration and potential for complications.

Discussion: Since its development in the early 1990s, the ATS has had multiple revisions and improved on earlier issues with inter-rater reliability. The ATS comprises five categories of clinical acuity associated with timeframes for medical attention. 1 The basis for assigning ATS categories relies on Airways, Breathing, Circulation and Disability parameters, involving appropriate matching of clinical descriptors to ATS categories. The subjective nature of ATS category assignment allows for variability in triaging between triage officers. The Canadian Triage & Acuity Scale (CTAS) is similar to the ATS and came into use throughout Canada by 1997. The MTS was introduced in the UK in 1996 and its use is now widespread, particularly in Europe. 2 MTS has an algorithmic approach to ED triage and, by using an array of flowcharts, the triage officer chooses a five-scale triage category for a particular presenting complaint. The more objective nature of the MTS has increased its acceptance in many parts of the world, though alterations to the flowcharts may be required in specific or geographically unique circumstances, such as envenomation. 3 The essential goals of triage are to identify life-threatening conditions, prioritise patients with higher acuity presenting complaints, and instituting early treatment strategies. 4 Overall, triage officers aim to correctly triage ED presentations to match the level of urgency. Under-triage of patients leads to increased risk of potential complications, morbidity and mortality. Over-triaging has little consequence for the specific patient, however, affects the ED as a whole by creating stress, increasing workload and delaying treatment for the true high acuity patient. In the case of poisoned patients, emergency triage aims to perform a risk assessment of the overdose or envenomation within 5 minutes. This key function has a major impact on time to medical treatment and risk of adverse outcome. Additionally, in deliberate self-poisoning presentations, the psychiatric background, social stressors, affect and suicidality of the patient all have a significant bearing on the assigned triage category. The existence of poisonings information centres (PICs) within a healthcare system has significant implications on emergency triage presentations. 5 The ability to filter the majority of trivial and minor exposures with out-of-hospital management selects higher acuity patients for ED presentation. PICs need to play a key role in ambulance triage at the scene as well as in ambulance control systems that decide on transportation of potentially poisoned patients. ED triage officers may also choose to contact a PIC during or at the completion of triage in order to modify risk stratification. Experienced triage officers are able to appropriately triage poisoned patients with symptoms and signs, particularly those involving agents that cause reduced level of consciousness or coma. Difficulties in triage are more common with the well-looked after patient whose toxidrome has yet to develop or does not manifest in altered sensorium, gastrointestinal upset or dyspnoea. Common triage pitfalls include ingestions of cardiac medications, heavy metals, oral hypoglycaemic agents, unusual chemicals, sustained-release preparations and paediatric patients. 6-8 Emergency triage systems, in their current form, do not necessarily take into account a risk assessment of the potential toxicity of the agent ingested. As such, they may fail to predict precipitous clinical deterioration in a minority of cases. Furthermore, failure to recognise potentially severe complications of specific agents, such as calcium channel blockers, may delay early life-saving interventional strategies. The triage officer has an additional role in instituting decontamination, if appropriate. Conclusion: Emergency triage of the poisoned patient is a crucial decision point in their medical management – ultimately, it can mean the difference between life and death. Several emergency triage systems are utilised around the world, each with its own limitations in risk assessment. The existence of poisonings information centres within a healthcare system has significant bearing on ED presentations of poisoning and envenomation. There are uncommon and dangerous toxicological presentations that require an astute and experienced triage officer to recognise the potential for life-threatening toxicity. References: 1. Australasian College for Emergency Medicine. The Australasian Triage Scale. www.acem.org.au [accessed 23 Jan 2012]. 2. Mackway-Jones K, Marsden J, Windle J, eds. Emergency Triage. Manchester Triage Group. 2nd ed. Oxford, England: Blackwell Publishing. BMJ Books, 2005. 3. Grouse AI, Bishop RO, Bannon AM. The Manchester Triage System provides good reliability in an Australian emergency department. Emerg Med J 2009; 26:484–6. 4. Commonwealth of Australia. Emergency Triage Education Kit, 2009. www.health.gov.au [accessed 23 Jan 2012]. 5. Benson BE, Smith CA, McKinney PE, et al. Do poison center triage guidelines affect healthcare facility referrals? J Toxicol Clin Toxicol 2001; 39:433–8. 6. Bartlett D. Tricky toxic presentations at triage. J Emerg Nurs 2005; 31:403–4.

2. The Role of the ECG in Risk Assessment of the Poisoned Patient

Manini AF. Division of Medical Toxicology, Department of Emergency Medicine, Mount Sinai School of Medicine, Elmhurst Hospital Centre, New York, US

Background: Poisoning is the leading cause of cardiac arrest in patients under 40 years of age 1 and the second-leading cause of injury-related fatality across all age groups in the US. 2 The ECG represents a rapidly available clinical tool that can help clinicians manage poisoned patients. Specific myocardial effects of cardiotoxic drugs have well-described electrocardiographic manifestations. The objectives of this review are: (a) to summarize specific toxic effects on the myocardium that can cause characteristic ECG changes; (b) to review the approach to the ECG in acutely poisoned patients and ECG-toxidrome pearls; and (c) to integrate ECG interpretation with management decisions in the poisoned patient. Discussion: Clinicians should adopt a systematic approach to ECG interpretation for poisoned patients that includes analysis of rhythm, intervals (QRS, QT, etc), and ischemic changes (ST and T wave changes). Common patterns of ECG manifestations may serve as pearls to aid clinicians in diagnosis and management of poisoning. In the setting of poisoning, drug classes that cause characteristic ECG manifestations include ion channel antagonists (sodium, potassium, calcium), cardioactive steroids (sodium-potassium ATPase), and beta adrenergic antagonists. Recent data suggests that initial ECG interpretation may predict in-hospital prognosis for patients with undifferentiated poisonings in the emergency department. 3 Poisoned patients suffering from cardiac arrest should be treated according to Advanced Cardiac Life Support (ACLS) guidelines with consideration of toxicology-specific antidotes as adjunctive therapy. 4 Conclusion. In medical toxicology, the ECG plays an important role in the evaluation of the poisoned patient to identify or exclude cardiotoxicity, as well as to take fundamental initial steps in initial management. A sound understanding of ECG interpretation and the characteristics of cardiotoxicity is necessary to establish a basis for the utility of the ECG in drug overdose. A systematic approach to the ECG in poisoned patients based on patterns of cardiotoxicity may help clinicians identify management strategies to ameliorate cardiotoxicity. References: 1. ECC Committee, Subcommittees and Task Forces of the American Heart Association. 2005 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. Circulation...
Twenty-six patients (16%) abused cocaine only and was attempted here as the capsules were seen near the colostomy exit. Emergency removal was performed. It was not possible to perform ultrasonic examination of the abdomen now appeared to be swollen and painful. The patient complained of abdominal pain but should be considered as a diagnostic differential, especially in otherwise healthy patients. The extremely rare use of colostomy concealment for drugs and the promising non-surgical opportunities to remove these containers by experienced endoscopists should be considered [12, 24]. The major risk of rupture of the capsules results in life-threatening overdose must be considered, however.

265. Gamma-Hydroxybutyrate Acute Intoxication in Italy: Recreational Drug Intoxication or Medication Overdose?

Petrolini VM, Kezer E, Vecchiotto S, Giampreti A1, Lonati D, Rognoni C, Bigi S, Manzo L, Locatelli CA: Pavia Poison Control Centre and National Toxicology Information Centre, IRCCS Maugeri Foundation and University of Pavia, Pavia, Italy

Objective: Gamma-hydroxybutyrate (GHB) and analogues are known worldwide as substances of abuse and rape drugs. In Italy GHB is also a medication used in the treatment of alcohol dependence. This study evaluates a case series of GHB overdoses referred to Italian emergency departments (EDs) in order to identify the characteristics of this intoxication in our country. Methods: A retrospective analysis of all cases of GHB intoxication referred to the Pavia Poison Center over a four-year period (2007–2010) was performed; all cases of admission to EDs for a confirmed and voluntary GHB poisoning were evaluated, while accidental or malicious intoxications (i.e. administration by another person as rape-drug) were excluded. Characteristics of the poisoned patients and clinical features were evaluated. Results: 178 of the 237 cases of GHB intoxication met the inclusion criteria (M/F ratio 1.6; median age 38.4 ± 8.9); 28% of the patients were admitted to the EDs during the weekend. Ninety-two per cent of the patients (164/178) ingested GHB in the trade pharmaceutical formulation (Alcover ®). Eighty-two patients ingested only the street-GHB or the Alcover ®, while other agents were co-ingested in 96 cases (53.9%), medications (78/96), substances of abuse (13/96) and ethanol (40/96) (more than two types were co-ingested in 34 cases). Severe neurological impairment (GCS < 9) was present in 56.7% of all the cases (101/178) and in 56.1% of the GHB/Alcover ® pure intoxications (46/82). Agitation or seizure was present respectively in 12.4% (22/178) and in 15.8% (13/82 pure intoxications) of the cases, severe respiratory failure in 7.9% (14/178) and 6.1% (5/82). The 37.8% (62/164) of all the patients who had ingested Alcover ® were in treatment with GHB for alcohol addiction. One patient died. Conclusion: Compared to the previously published studies on GHB intoxication, this case series shows some peculiarities such as higher average age, high percentage of co-ingestion of medications and ethanol, lower percentage of excitatory symptoms, homogeneous distribution of the cases during the week. The use of GHB in Italy for the treatment of alcohol addiction should result in an easier availability for patients at risk of abuse and could explain the peculiarities of our case series.
**Gamma-hydroxybutyric acid (GHB) and analogues are worldwide known as substances of abuse and rape drugs. It’s available in solid or liquid form, colorless, tasteless and odorless.**

**In Italy GHB is also a medication used in the treatment of alcohol dependence. Alcover® is a colorless liquid, sold in bottles (140ml-24.5g or 10ml-1.75g), cherry-flavored.**

**OBJECTIVE**

This study evaluate a case series of GHB voluntary overdoses referred to Italian emergency departments (EDs) in order to identify the characteristics of this intoxication in our country.

**METHODS**

**Included patients**

178 of the 237 cases of GHB intoxication met the inclusion criteria (M/F ratio 1.6; median age 38.4 +/- 8.9). Ninety-two per cent of the patients (164/178) ingested GHB in the trade pharmaceutical formulation (Alcover®).

**Pure / mixed intoxications**

Eighty-two patient ingested only the street-GHB or the Alcover®, while other agents were co-assumed in 96 cases (53.9%) [Fig. 1]: medications (78/96), substances of abuse (13/96) and ethanol (40/96) (more than two type were co-assumed in 34 cases).

**Clinical features**

Severe neurological impairment (GCS<9) was present in 56.7% of all the cases (101/178) and in 56.1% of the GHB/Alcover® pure intoxications (46/82). Agitation or seizure were present respectively in 12.4% (22/178) and in 15.9% (13/82) of the cases, severe respiratory failure in 7.9% (14/178) and 6.1% (5/82) (Tab. 1). The 37.8% (62/164) of all the patients who had ingested Alcover® was in treatment with GHB for alcohol addiction. One patient died.

**CONCLUSION**

Compared to the previously published studies on GHB intoxication, this case series shows some peculiarities such as higher average of age (Fig. 2), high percentage of co-assumption of medications and ethanol, lower percentage of excitatory symptoms, homogenous distribution of the cases during the week (Fig. 3). The use of GHB in Italy for alcoholism addiction should result in an easier availability for patients at risk of abuse and could explain the peculiarities of our case series.

**REFERENCES**

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