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FACTORS ASSOCIATED WITH THE DEVELOPMENT OF THE SYNDROME OF IRREVERSIBLE LITHIUM-ENCOMPASSING NEUROTOXICITY (SILENT) FOLLOWING LITHIUM INTOXICATION

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Introduction. Lithium's narrow therapeutic index continues to make it a challenging drug to manage, and its potential toxicity remains the main concern when prescribed. The objectives of lithium intoxication treatment are to prevent death and avoid the syndrome of irreversible lithium-encompassing neurotoxicity (SILENT). SILENT was first described in 1987. As part of this syndrome, patients may develop cerebellar dysfunction, extrapyramidal symptoms, brainstem dysfunction, and dementia[2]. Other neurological sequelae may include nystagmus, choreoathetotic movements, myopathy, and blindness. Cerebellar dysfunction is considered the most common sequela, potentially due to demyelination in multiple locations of the central nervous system (CNS).

Objectives. To determine the rate of SILENT and identify factors associated with its development following an episode of lithium intoxication.

Methods. This was an international multicenter cohort study involving 26 hospitals in Spain, Ireland, and Switzerland. All patients older than 17 years diagnosed with lithium intoxication and treated at the participating centers from 2012 through 2022 were included. This report presents a preliminary analysis with approximately 70% of the recruitment completed.

Results. At the time of this analysis, 454 patients had been included in the study. The median age was 62 years (IQR 51–71), and 65% were women. Forty-nine patients (10.8%) presented symptoms suggestive of SILENT after the acute phase of intoxication. A total of 6.8% (31/454) presented symptoms suggestive of SILENT two months after lithium intoxication. Among these, the most frequent presenting symptoms were persistent extrapyramidal syndrome (13 patients, 41.9%), dementia with varying degrees of organic mental syndromes (9, 29.0%), and persistent cerebellar dysfunction (9, 29.0%).

Multivariate analysis identified the presence of ataxia as a predictive factor for the development of SILENT (20% of patients with ataxia at the time of acute intoxication developed SILENT vs 4.4% of patients without initial ataxia), (OR, 7.01; 95% CI, 1.60–30.80; $P < .010$). No statistically significant differences were found in the other demographic, clinical, or analytical variables analyzed. Regarding specific follow-up, 48.2% of patients were seen in outpatient consultations after the acute intoxication.

Conclusions. The presence of ataxia at the time of acute lithium intoxication seems to be a clinical predictive factor for the development of SILENT. Given the incidence and severity of SILENT (7% in our cohort), we consider it essential to establish a standardized system of specific fol-

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low-up for these patients. Identifying factors associated with a higher risk of developing SILENT could facilitate early recognition of intoxicated patients who are candidates for this follow-up.

USE OF FLUMAZENIL IN DRUG INTOXICATIONS. ARE WE DOING IT RIGHT?

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Introduction. The usual treatment of an intoxicated patient is based on four components: general supportive care (hemodynamic and ventilatory), limiting toxin absorption, neutralizing its effects, and enhancing its elimination. The use of an antidote is considered appropriate when:

– It is specifically indicated for a particular intoxication with high potential or actual severity.

– The benefits of administration outweigh the risks associated with its potential adverse effects.

Flumazenil is a competitive GABA receptor antagonist for benzodiazepines (BZDs). It is the most widely used antidote in clinical practice, making it crucial to understand its indications and contraindications.

Objective. To analyze the appropriate indication for antidotal treatment with flumazenil administered to patients presenting with problems related to drug abuse in a hospital emergency department.

Methods. We conducted a review of emergency medical records for toxicological cases in a tertiary urban referral center emergency department. Cases of drug intoxication were selected based on clinical and analytical criteria, excluding pure ethanol intoxications and cases where drugs were not a determining factor. The indication for flumazenil use was assessed according to the Antidote Network guidelines (https://redantidotos.org/antidoto/flumazenilo/).

Results. Over a period of more than 10 years (Oct 2013 – Dec 2023), 2,068 cases were selected, and flumazenil was used in 129 instances (6.23%), with annual usage rates ranging from 1.6% to 15.2%. Toxicological testing was obtained in 120 patients. Based on the Glasgow Coma Scale (GCS), where flumazenil is indicated for GCS < 12, it was appropriately used in 100 cases (78%). Based on the presence of other substances recorded during history taking, indications to avoid flumazenil were found in 85 cases (66%). Strictly adhering to the guideline that flumazenil should only be used when BZDs are the sole toxic agents, appropriate use occurred in only 3 cases (2.3%). Toxicology lab results confirmed the presence of substances advising against flumazenil in 103 cases (85.3%)—cocaine in 78 cases, and amphetamines or derivatives in 128 instances. Strictly considering pure BZD intoxications, correct use was demonstrated in only 5 cases (4.1%). Limitations: single-center data, subjectively selected cases, and lack of complication frequency data following administration.

Conclusions. Flumazenil use in drug-related intoxications is overutilized and does not meet standard quality criteria. Clinical indications are often overlooked, and contraindications—especially in cases involving multiple substances—are frequently ignored.

PARAQUAT POISONING: A CASE IN AN INDIGENOUS PATIENT

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Introduction. Paraquat is a highly effective non-selective bipyridyl herbicide widely used in agriculture. Morbidity and mortality rates from poisoning vary by country and can reach 100% in intentional cases due to the absence of an effective and specific antidote. In Colombia, the mortality rate in 2020 was 42%.

Suicidal behavior is a biological and sociocultural phenomenon and is considered a public health issue by the World Health Organization. Indigenous ethnic groups are among the populations at greatest risk.

Materials and Methods. This case report was documented with consent from Hospital Rosario Pumarejo de López Hospital (Valledupar, Colombia), a referral center in the department of Cesar, Colombia, where the patient was treated. Some images were original, and others were used with institutional permission.

The patient was a 17-year-old female from Pueblo Bello, Cesar from the Arhuaco indigenous community. She was transferred to the ED from a primary care facility with a 3-day history of dyspnea, dysphagia, and generalized jaundice following voluntary ingestion of approximately 50 cc of Gramafin (active ingredient: paraquat). According to relatives, the patient had been treated with ancestral medicine by the community leader before hospital arrival.

Upon admission, the patient was alert, non-verbal but following commands, with marked generalized mucocutaneous jaundice, normotensive, tachycardic, tachypneic, and with borderline oxygen saturation on room air. Physical examination revealed the presence of erythematous and ulcerative oral lesions (Figure 1), intercostal retractions with diminished breath sounds in both lung fields, mildly distended abdomen, and dark-colored urine.

Lab test results showed leukocytosis with neutrophilia, acute kidney injury, uremia, transaminitis, and hyperbilirubinemia. Coagulation times, electrolytes, and arterial blood gases were within normal limits. Chest CT revealed subcutaneous emphysema in the neck extending to the upper, middle, and lower mediastinum, with widespread bilateral ground-glass opacities.

Initial treatment followed guidelines from the Colombian Ministry of Health, PAHO, and WHO, consisting of tertiary prevention with N-acetylcysteine, propranolol, and immunosuppressive therapy. The patient was transferred to the pediatric intensive care unit, where she died 40 hours after admission due to multisystem and respiratory failure.

Conclusions. Paraquat poisoning has a very high mortality rate, especially when ingested orally, due to the lack of a specific antidote. It is a frequent method of suicide,

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Figure 1. Lesions on the oral mucosal surfaces.

particularly affecting youth and minority groups such as indigenous populations.

FULMINANT HEPATIC FAILURE IN A PATIENT USING AMPHETAMINES

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Fulminant hepatic failure in patients who use amphetamines is described in the literature, although it is not a common occurrence, and its etiopathogenesis remains unclear. We present a fatal case in which both conditions were present, without a definitive causal relationship being established, although no alternative etiology was identified to explain the liver failure.

A 46-year-old male, carpenter by trade, retired for 10 years due to permanent disability from neurogenic pain due to lumbar disc herniations and cervical central canal and foraminal stenosis. He had been under psychiatric care since 2022 for an adjustment disorder with anxious-depressive features and a psychotic episode related to speed use. His treatment included various analgesics (NSAIDs, opioids, and pregabalin). He presented to the ED with an 8-hour history of abdominal pain and associated autonomic symptoms. Notable findings included cyanosis and hypotension. Initial laboratory workup showed: pH 7.18, HCO_3^- 14 mmol/L, lactate 14.5 mmol/L, glucose 53 mg/dL, procalcitonin > 100 µg/L, CRP 27 mg/L, D-dimer 123,005 ng/mL, elevated liver enzymes (AST 1,815 U/L, ALT 1,043 U/L, LDH 2,163 U/L), amylase 100 U/L, total bilirubin 2.2 mg/dL, and severe coagulopathy (prothrombin activity > 15%, PT 230 s, fibrinogen < 70 mg/dL).

An abdominal CT scan revealed only a possible acute cholecystitis, with no evidence of gallstones. Empiric antibiotics, volume resuscitation, supportive care, and early dialysis were initiated. Toxicology samples were sent to the lab. Radiologic findings were discussed with the general surgery team, which opted for expectant management due to the severe coagulopathy and absence of complications, interpreting the findings as secondary to shock.

The patient's condition deteriorated rapidly, and he was refractory to all supportive measures. A few hours after ICU admission, the family reported discovering speed in the patient's room, possibly adulterated. The patient died 30 hours after admission. Toxicology results revealed amphetamines in urine confirmed by mass spectrometry (> 3,000 ng/mL) and blood ethanol concentration of 1.30 g/L. No blood sample was available for further analysis.

FIRST ANALYTICAL CONFIRMATION OF DIMETHYLTRYPTAMINE FOLLOWING A SPIRITUAL CEREMONY

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Introduction. The use of hallucinogenic substances in spiritual or religious rituals is common and may be exploited by self-proclaimed shamans to perpetrate acts of sexual violence. We present the case of a patient who attended the ED following a group physical assault during a spiritual ceremony. The patient reported Ayahuasca consumption, and analytical confirmation was obtained during the process of verifying a false-positive amphetamine result.

Case report description. A 45-year-old German woman, non-resident in Spain and with no known past medical history, presented to the ED of a regional hospital reporting a group physical assault during a spiritual ceremony in a rural area. She fled on foot through the countryside, sustaining multiple injuries. She reported ingesting various substances, including Ayahuasca. No sexual assault or head trauma was reported. Physical exam: BP 106/75 mmHg, HR 104 bpm, Temp 36°C, $SatO_2$ 100%. The patient was afebrile, hemodynamically stable, alert, and nervous (GCS 15), with no focal neurological signs or meningeal irritation. Multiple abrasions were noted on the upper and lower extremities. X-rays of both knees and nasal bones showed no fractures. Urine toxicology screening turned out positive for cannabis. A chemical submission protocol was initiated at the reference hospital.

At the reference hospital, urine screening turned out positive for amphetamines and cannabis, and negative for ethyl glucuronide, cocaine, MDMA, opioids, LSD, ketamine, methadone, and benzodiazepines. Serum ethanol was undetectable. GC-MS toxicology did not confirm the presence of amphetamines, methamphetamines, or any known cross-reactive substances. Scopolamine and GHB were also not detected. Given the patient's past medical history and negative amphetamine confirmation, specific testing for N,N-dimethyltryptamine (DMT), the active compound in Ayahuasca, was performed and yielded a positive result.

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Conclusions. It is recommended to include DMT in chemical submission protocols when there is suspicion that victims attended spiritual rituals or when patients report experiencing brief but intense visual and auditory hallucinations, as recreational use of this substance appears to have increased in recent years in Western societies. DMT has the potential to cause false positives in amphetamine screening tests, which may raise suspicion of its presence. However, as with other substances that cause cross-reactivity, this does not occur with all screening methods.

POISONINGS IN AN INTENSIVE CARE UNIT OVER FIVE YEARS: DIFFERENCES BETWEEN MEN AND WOMEN

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Introduction/Objectives. Poisonings are frequent in emergency departments, and some cases require ICU admission due to severity. Our objective was to conduct an epidemiological analysis of poisoned patients admitted to the ICU over the past 5 years and assess potential sex-related differences.

Materials and Methods. We conducted a retrospective, descriptive study through the analysis of all cases admitted to an 18-bed Intensive Care Unit (ICU) (10 critical care and 8 intermediate care beds) in a Level 2 hospital over a five-year period (2019 to 2023). Data were analyzed using SPSS version 15.0, evaluating the following variables: age, sex, psychiatric history, type of toxic substance, intentionality, clinical presentation, length of ICU stay, total hospitalization days, treatment administered, psychiatric evaluation, mortality, and discharge destination. Patient characteristics were compared according to sex.

Results. A total of 63 patients were admitted to the ICU for poisoning, representing 2.1% of all poisonings treated (2,998 cases) during the period. Men accounted for 62% of cases, with a similar mean age across sexes (men: 55 years, women: 52 years). Mean ICU stay was 3 days for women and 4 for men. Psychiatric history was more frequent in women (67% vs. 54%). Suicidal intent was the leading cause (43%) in both sexes. Neurological symptoms predominated in 76% of cases, with no significant sex differences. Drug ingestion accounted for 60% of ICU admissions (62.5% in women vs. 59% in men). Alcohol was involved in 14% of cases, more so in men (20.5% vs. 4%). Illicit drug use was more frequent in men (26% vs. 8%), with cocaine being the most common (13% overall; 15% in men vs. 8% in women). Antidotes were used in 54% of cases, mainly flumazenil (35% overall; 33% men, 37.5% women) and naloxone (24% overall; 28% men, 17% women). Extrarenal purification methods were used in 12 cases (25% women, 15% men). Urine toxicology testing was performed in 33% of cases (21% women, 41% men). Psychiatric assessment occurred in 57% of cases (62% women, 54% men). Post-discharge referral to psychiatric centers occurred in 25% of cases (33% women vs. 20.5% men). The overall mortality was 14% (9 cases): 17% in women and 13% in men. In this mortality series, digoxin poisoning was detected in two cases; metformin was associated with abdominal sepsis in two cases and with distributive shock in another. One fatality was due to ingestion of bleach, another to polydrug intoxication, one to aspiration pneumonia, and another to CO-CNH (carbon monoxide–cyanide) poisoning.

Conclusions. Poisonings treated in the ED that required ICU admission from 2019 to 2023 accounted for a low rate (2.1%) of all poisonings. No significant sex-related differences were observed. In both sexes, the mean age ranged from 50 to 55 years, with half of the cases presenting with underlying psychiatric disorders. Most patients arrived with neurological symptoms due to poisoning by multiple drugs, predominantly benzodiazepines. Illicit drugs and alcohol were more frequently involved in poisonings among men.

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