Energy Drink Labeling in Kuwait: Analysis of Compliance with Kuwait and GCC Warning Label Requirements

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Abstract

Background:

Kuwait, as all GCC countries, has warning label requirements for energy drinks. To protect vulnerable groups, including children, pregnant women, breastfeeding women, and others, warning labels are intended to caution these groups against using energy drinks. We conducted cross-sectional sampling in 2022 to determine if energy drinks sold in Kuwait carry required warning labels.

Methods:

Fifteen vendors, including the 5 largest supermarkets and 10 smaller non-franchise supermarkets were sampled and all available energy drinks included. Variables were recorded: brand, product name, warning label components including for pregnant women, breastfeeding women, children <16 years, cardiac patients, exercising persons, and persons with caffeine allergy/sensitivity. The null hypothesis that >10% of products don’t have a warning label was tested. Summary descriptive results of other analysis were also compiled.

Results:

Every vendor who was visited sold energy drinks. 43 products were available, and all had a warning label. Of these, 19/43 (44.2%) carried all warnings correctly in Arabic (Ar) and English (En). To a statistically significant degree (p= 0.0023), products do contain some warning label, but also to a statistically significant degree (p=0.0001) they do not contain all warnings in both Arabic and English.

Discussion:

Energy drinks are sold widely throughout Kuwait, and are available at every retail grocery supplier sampled. All products (100%) had some warning label. Most did not contain warnings for all required conditions in both Arabic and English. For individual warning label components, many products failed to provide a warning to all required groups of vulnerable consumers.
Snake bite in adult and pediatric from Asir region in southern of Saudi Arabia: 20 years descriptive study

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Abstract

Background: In Saudi Arabia, there are two clinically important venomous snake families; Viperidae and Elapidae. In the Asir region, there are 14 species of snakes belong to Elapidae, Leptotyphlopidae, Colubridae, Typholopidae, and Viperidae. We conduct this retrospective multi-center hospital-based study to describe the species of identified snakes, clinical presentations, outcome, and management of snakebite in the Asir province in the southern region of Saudi Arabia.

Method: This is a 21-year retrospective chart review study of all snake bites involving pediatric and adult patients from four hospitals in the Asir region of Saudi Arabia from 2000 to 2021.

Results: 69 patients were identified and included in the study. Moderate to severe local manifestations were seen in 47.8% of patients had, 18.8% of patients had neurological presentations, 46.4% of patients had coagulopathy and 23.2% of patients had rhabdomyolysis with creatine phosphokinase over 1000 units/L. Four patients had acute kidney injury which progressed to end stage renal disease (ESRD) in two of them. Three patients died. 94% of patients received an initial dose of five vials of antivenom and 42% received subsequent doses of antivenom. Mild adverse reaction to antivenom occurred in 6/69 (9%) of patients. Blood products and antibiotics were used in the treatment of patients in 30% and 67% of encounters, respectively.

Conclusion: Clinical presentations of snakebites in the Asir region range from mild local manifestation to severe manifestations such as coagulopathy, compartment syndrome, respiratory paralysis and cardiopulmonary arrest. The antivenom dosing depends on the severity of clinical presentations. Public health awareness programs based on scientific evidence that seeks to educate the public regarding the potential risk of snakebite and how to handle such risk are crucial.
Role of High Dose of Methylprednisolone in Prevention of Esophageal Stricture Formation in Patients of Corrosive Esophageal injury - A Randomized Controlled Open Label Study

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Introduction: Corrosive ingestion have devastating effects on upper gastrointestinal and respiratory tracts which can lead to life-threatening complications. Esophageal stricture formation is the major complication. Role of corticosteroid therapy in acute management of corrosive ingestion is controversial. Most of the studies on the utility of steroids have been done outside India, that too in patients of pediatric age group.

Aim: To compare the efficacy of high dose Methylprednisolone versus placebo in the prevention of esophageal stricture formation.

Study Design: A Randomized Controlled Open Label Study was conducted between July 2020 - March 2022 in the Department of Emergency Medicine, AIIMS, New Delhi

Materials & Methods: It was a single center, Randomized Controlled Open Label Study. Eligible patients were randomized to intervention and control groups on 1:1 basis. The study included 30 patients of >18years of age (15 in each arm) who presented with a history of corrosive ingestion within 24 hours and had esophageal injury of Zargar grade IIB on endoscopy. Patients allocated to the intervention arm received intravenous Methylprednisolone 1 gram/day for 3 days. Patients in the control arm received 100ml of normal saline instead of methylprednisolone. Patients in both the arms also received intravenous Pantoprazole 40mg OD, Intravenous Ceftriaxone 1 gm BD, intravenous fluids along with other supportive therapy. All the patients were monitored for acute complications and were called for follow up endoscopy and barium swallow to diagnose esophageal stricture after 8 weeks from ingestion.

Statistical Methods: Strata14.0 statistical software was used for analysis. Descriptive methods (mean, SD, frequency) were used for comparison of the quantitative data, while Student’s t test was used to compare the normal distribution of the parametric data. Mann- Whitney U test was used to compare nonparametric variables between both the groups. Chi square test and Fisher’s exact test were used for the comparison of the qualitative data. Results were assessed within 95% confidence interval (CI), and statistical significance was based on p value of ≤ 0.05.

Results: A total of 30 patients (15 in each arm) were recruited in the study. The percentage of stricture development in the intervention and control arm was 23% and 46.6% respectively. This difference was statistically non-significant (p value=0.193) as per protocol analysis. Though, the requirement of feeding jejunostomy was significantly reduced in the intervention group as compared to the control group (7.7% vs.40%) with p value of 0.048. In patients with airway injury secondary to corrosive, there was a significant clinical improvement (reduction of symptoms) in the intervention arm but statistically the difference was non-significant with a p value of 0.674. There were no significant change recorded in blood pressure, blood sugar levels,
serum electrolytes and infection rates with steroid therapy. No patient developed perforation, peritonitis or mediastinitis with high dose steroid therapy. There was no mortality reported at 8 weeks in our study.

Conclusion: Methylprednisolone does not help in prevention of stricture formation in corrosive esophageal injury, but it significantly reduces the requirement of feeding jejunostomy and have a beneficial role in treating airway injury.
Medical Toxicology Knowledge Of Emergency Medicine Residents in comparison to Non-Emergency Medicine Residents (A Questionnaire - based Study)

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Background: Many emergency medicine (EM) residency programs worldwide incorporated medical toxicology in their curriculum to enhance the residents knowledge in this field. However, there is a paucity of research studies focused on this issue in depth. In particular, there are no studies that compared the medical toxicology knowledge of EM residents to non-EM residents. Thus, this study aims to compare medical toxicology knowledge of EM residents to non-EM residents during the academic year 2021-2022 at Oman medical specialty board (OMSB).

Method: this study is a cross-sectional, qualitative, questionnaire-based study. The questionnaire consists of two parts. The first part has 15 validated multiple choice questions (MCQs) covering the most commonly encountered medical toxicology cases in clinical practice; while the second part is a confidence self-assessment survey about the same topics covered in the first part. The questionnaire was administered in person to research participants who were a total of 94 EM, internal medicine and family medicine residents from different training levels in OMSB. Out of them, 37 (39.4%) were from the EM group and 56 (60.6%) were from the non-EM group.

Result: The results showed that the mean of the correct answers percentage of the MCQs in the EM and the non-EM group were 66.3 and 51.57 respectively; showing statistically significant difference (P-Value <0.001). Moreover, the findings indicated that the confidence level of the EM residents was significantly higher (P-value <0.05) than the non-EM residents in most toxicology topics covered in the study questionnaire. Finally, the results revealed that paracetamol toxicity is commonly encountered by both EM and non-EM group 36.8% and 31% respectively.

Discussion: This study showed that the medical toxicology knowledge of EM residents is significantly higher than the non-EM residents. This finding represents that there is a knowledge gap in the non-EM group. Further studies need to be done to explore the reasons behind the knowledge gap in the medical toxicology field among residents. The study results further revealed that EM residents are significantly more confident in comparison to non-EM residents in many toxicology topics encountered in clinical practice. This is mainly due to multiple confounders like the toxicology block at senior level and the monthly toxicology rounds done during resident academic activities. Moreover, the study findings showed that paracetamol toxicity is the most commonly encountered cases in clinical practice by EM and non-EM residents in Oman. However, in other contexts like the USA, the literature has shown that analgesics toxicity was on the top reported 5 substance categories (American Poison Centers, 2020). Based on the study findings, it is recommended to add toxicology content in the non-EM curriculum to develop their core toxicology knowledge.
Patterns of telephone enquires related to suicide attempts received by the Khartoum Medicines Information Centre between January and November 2022

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Introduction: Suicide is a major global health challenge and leading cause of death (1). In 2019, 77% of global suicides occurred in low- and middle-income countries. Suicide was the fourth leading cause of death among 15–29-year-olds globally in the same year (2). Deaths from suicide attempts are preventable with timely, evidence-based, and often low-cost interventions. The Khartoum Medicines Information Centre (KhMIC) receives telephone enquiries from both public and health care providers relating to poisoning from suicide attempts and provides advice on clinical management. Limited data is available regarding suicidal attempts in the Sudan. This study was conducted to identify patterns of received telephone enquiries relating to suicide attempts and drugs involved.

Objectives: Report number of telephone enquiries related to suicidal attempts received by KhMIC between January and November 2022. Describe patterns of reported suicidal attempts received by KhMIC between January and November 2022.

Methodology: A retrospective study was conducted to review all telephone enquiries received by KhMIC relating to suicidal attempts between January and November 2022.

Results and discussion: Of a total of 1163 poisoning enquiries received by KhMIC between January and November 2022, 64 enquiries (5.5%) were related to suicide attempts. Forty-one enquiries (64%) were received from within Khartoum State; the remainder from other Sudanese states. Forty-three patients were female (67%). Thirty-four patients (53%) were between 11-20 years of age and 24 patients (37%) were between 21-30 years of age. In 42 enquiries (66%), only one product was reported. The most reported medications reported were central nervous system (CNS) acting drugs (antidepressants, antipsychotics, antiepileptics) with 22 enquiries (34%), followed by paracetamol with 10 enquiries (16%). Non-steroidal anti-inflammatory drugs were reported in 7 enquiries (11%). Insecticides and rodenticides were reported in 4 enquiries (6%). One patient had ingested an overdose of his anti-cancer medication. Use of hair dye, though anecdotally common in self-harm in the Sudan, was reported in 2 patients only. Forty-six patients (72%) were reported to have used a toxic dose. Only 16 patients (25%) developed severe symptoms, 28 (44%) had mild or moderate symptoms, and 20 patients (31%) remained asymptomatic. Gastric decontamination was not performed in 53 patients (83%); vomiting was induced in 3 patients (5%) at home and 8 patients (12%) underwent gastric lavage upon hospital admission. No confirmed deaths were reported from this cohort of enquiries.
Conclusion: Teenagers and females were the most reported patient groups in suicide related enquiries to KhMIC. CNS drugs were the largest group of medications reported. Our study has also identified that gastric lavage is performed at some hospitals which may require further review and education.
Chemical submission and toxicological diagnosis, about two cases

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Chemical submission is the administration for criminal or tortious purposes of a psychoactive substance without the knowledge of the victim. Multitude of products can be used: drugs diverted from their use, illicit drugs, or even, more simply, ethyl alcohol. The quality of the samples, the use of ultra-sensitive and specific toxicological techniques and clinical-biological collaboration are the conditions for highlighting this form of delinquency, the consequences of which are both medical and legal.

The toxicological analyzes carried out at the level of the Algerian National Center of Toxicology (CNT) detected a psychotropic drug (benzodiazepine) in the urine of a married couple and in a mixture of water and honey which was administered to them in a context of "Ruqya" home. These victims of aggression (robbery) consulted in the emergency room, with symptoms suggestive of chemical submission (amnesia, impaired vigilance). The toxicological analyzes were carried out by chromatographic techniques (HPLC-UV/DAD) on blood, urine, water and the mixture (water-honey).

The diagnosis of chemical submission is difficult to establish formally. Often, the products used have short half-lives, the circulating concentrations are low, the samples are taken late. Hence the importance of discussing this diagnostic hypothesis and taking plasma and urine samples early, which should be sent to a specialized laboratory. This will be the first step in the always essential forensic investigation.
Deadly toilet seat: fatal bite in unusual location- case series

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Background: According to the world health organization, people are bitten ubiquitously they go, even just walking to an outdoor toilet. We are reporting three cases who were bitten in an indoor toilet with an Arabian cobra.

Method: This is a case series of three patients whom bitten by Arabian Cobra on the indoor toilet in ground floor.

Case 1: Five-year-old female who had been bitten in the left buttock multiple times while she was setting on the indoor toilet seat on the ground floor. The snake was identified as an Arabia cobra. She had a cardiac arrest at a primary health clinic after 90 minutes of envenomation. Resuscitation was started, ROSC was achieved and transported to hospital where she died after two days. She received 110 vials of antivenom, 200ml of PRBCs, 400ml of FFP, 400ml of platelets and a total of 15mg of intravenous vitamin K. she passed away at fifth day of admission with multiorgan failure.

Case 2: 25-year-old male who had been bitten in his left big toe while stepping in the indoor toilet. The snake attacked him abruptly from the toilet seat before he sits on. The patient picked up a brief clip by his mobile camera, which showed up around two-meter-tall Arabian cobra. Patient took place within 30 mins to the emergency department complaining of intense pain with local oozing. He received intravenous fentanyl 50 micrograms, 10 vials of anti-snake antivenom, with maintenance dose of 2 vials every 6 hours for three doses. There was mild local edema with no neurological or systematic manifestations. His labs were within reasonable limits. He was discharged home after 3 days of admission.

Case 3: 55-year-old male had been inflicted–while he was setting on the toilet seat- by snake multiple times in his left small and ring finger. He arrived to emergency after 30 mins of bite with unable to stand or walk with ptosis. No ophthalmoplegia or neck weakness. The provisional diagnosis was neurogenic snake bite, and he received 10 vials of anti-venom immediately. On the second day, patient’s friends open the toilet and killed around one-half meter tall Arabian cobra. The second dose of five vials of antivenom was given after two hours of the first dose, as the improvement was mild. There was a complete recovery after six hours, and we started the maintenance dose. His left hand was noticeably swollen, which improved by one-pillow elevation and antivenom administration. Patient was discharged after five days of admission.

Conclusion: Though Arabian cobra bite is lethal, immediate seeking of medical care can preserve the life, especially in pediatric patients with whom they have small body weight. It is obvious the Arabian cobra can access the ground floor toilet seats through sewages pipe, especially near to agriculture areas. Thus, community education in term of using a one-way valve in the toilet seat
as a preventive technique and early seeking the medical care as management approach are crucial to avert such life-threatening rare scenarios.
Manifestations and management of black widow spider (Latrodectus renivulatus) bite in pediatrics in Saudi Arabia: a case series and call for antivenom availability

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Introduction: Black widow spider (Latrodectus renivulatus) envenomation is a unique toxicological emergency affecting Middle Eastern countries. Although the mortality risk of black widow spider envenomation is low, bites pose a considerable morbidity risk to victims and have a substantial economic impact on health care systems. The severity of clinical manifestations depends on the amount of venom delivered in the bite and the age of the victim. Here, we report four pediatric cases of severe black widow spider envenomation in Saudi Arabia. This is the first case series reporting on pediatric black widow spider envenomation in Saudi Arabia. The neurological manifestations of envenomation in these patients were predominant, and all patients needed morphine for pain relief. All patients required admission to the pediatric intensive care unit (PICU). The durations of PICU stay and total hospital stay were 1–3 days and 2–5 days, respectively. Previous reports have shown that Latrodectus antivenom is safe and effective, and we believe that it should be considered in cases of severe envenomation in Saudi Arabia to rapidly relieve symptoms and reduce the duration of hospitalization. However, patients did not receive the Latrodectus antivenom in this study owing to unavailability.
Sound tasty but toxic, cantharidin poisoning due to Spanish fly ingestion in children; case series

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Introduction: Cantharidin is a known toxin and vesicant in the ovaries, blood and soft tissue of blister beetle (known as Spanish fly). Hycleus maculiventris, subspecies of Meloidae family, is the recognized species in the southern region of Saudi Arabia. We are describing two cases of cantharidin poisoning after ingestion of blister beetle.

Case 1: 9 months old boy who looks unwell after Spanish fly in his mouth. Yet, the beetle was removed intact before having chawed; the patient had persisting vomiting for 15-times. He had a gross hematuria after 20 hours of ingestion. He looks dehydrated, lethargic, tachycardiac, febrile and hyperglycemic, for which he required admission to the intensive care unit. His laboratory results revealed mild metabolic acidosis, renal impairment, hyperkalemia, leukocytosis with 4X blood and 2X protein in the urine dipstick. The main step of management was conservative through hydration, pain control and antiemetics. His clinical condition improved and discharged after 6 days.

Case 2: 2 years 9-month-old boy who looked ill after ingestion of beetle blister. He had repeated vomiting for 12 hours, followed with gross hematuria, urine clots, with 4X blood and 2X protein in the urine dipstick. The patient required admission to the intensive care unit for monitoring and supportive care. His laboratory studies were within normal range except for leukocytosis. His hematuria resolved at third day of admission and discharged after 5 days.

Discussion: The onset of symptoms of cantharidin intoxication occurred shortly after ingestion, secondary to its irritant effect on the mucous membrane of esophagus and stomach. Absorption of cantharidin associated with systematic manifestations, particularly hemato-proteinuria and leukocytosis. The key management of cantharidin poisoning is supportive via pain killers, hydrations and antiemetics. Though there are case reports of renal failure and shock, most of the incidental cantharidin poisoning cases completely recovered.
Therapeutic Baclofen Induced Neurotoxicity in Patient on Renal Dialysis, A Case Report and Literature Review

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Background: Baclofen is a centrally acting GABA receptor agonist and it is used widely for the treatment of spasticity, persistent hiccups and multiple sclerosis. It is mainly eliminated by the kidneys. Thus, it is accumulated in patients with renal insufficiency leading to the central nervous system toxicity.

Methods: This is a case report and a literature review of therapeutic baclofen induced toxicity in patients with renal hemodialysis.

Case Summary: We present a 74-year-old female known case of hypertension on medications, who was brought by to the Emergency Department with decreased level of consciousness started after taking two tablets of baclofen for low back pain. The patient was lying in bed, sleepy, but not in distress. Her initial vital signs were normal apart from a mild tachycardia 111. Her GCS was 9/15. She had no focal neurological deficit. Her pupils were normo-dilated, equals and reacting to light. The CT Brain and laboratory tests findings did not explain her decreased level of consciousness. The patient was diagnosed with baclofen toxicity in view of the recent use and the known neurotoxic side effect, as well as other common causes of altered mental status were ruled out. She received two sessions of intermittent hemodialysis however with no significant improvement in GCS. Therefore, Continuous veno-venous hemodialysis was performed, after which her condition improved, and her GCS became 15/15. She was discharged on the next day with her regular medications. She was advised to continue her regular dialysis sessions as planned before and to avoid baclofen and nephrotoxic medications.

Conclusion: Baclofen neurotoxicity is not very common in general population and mainly seen with patients with ESRD. In this group of patients, it can be serious and life threatening. We recommend that Baclofen should not be used in patients with end stage renal disease and that healthcare providers should be educated about this toxicity.
Prevalence and Outcome of Phenytoin Toxicity in Patients Presented To Tertiary Care Hospital Emergency Department

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Background: The overdose on oral phenytoin causes mainly neurotoxicity and rarely causes cardiovascular toxicity. The neurological clinical features depending on the serum phenytoin level ranged from nystagmus to seizure and coma.

Objectives: This study aimed to describe the prevalence of phenytoin toxicity, the most common presenting symptoms, clinical manifestations and outcomes in patients presented to Sultan Qaboos University Hospital (SQUH) Emergency Department (ED) over 10 years.

Methods: It was a cross-sectional retrospective study that included all patients presented to SQUH ED from January 2012 to January 2022 who had high phenytoin level. Data were collected using electronic patients’ medical records.

Results: The total number of patients was 2245. The sample included only 24 patients who met the study inclusion criteria. 17 (70.8%) were male and all were Omani. The age ranged between 6 - 77 years old with median age of 35.5 years. Acute overdose was seen in one patient only (4.2%) and chronic overdose in 23 (95.8%). 20 (83.3%) presented with neurological symptoms. Drug level ranged from 82.7 - 259 umol/l (median134.8). 20 (83.3%) had abnormal neurological examination including seizure. ECG was normal in all patients. 14 patients (58.3%) were discharged from ED and 10 patients (41.7%) were admitted to hospital.

Conclusion: Chronic toxicity was observed more commonly than acute toxicity. Neurological symptoms and signs were most common. The results of this study showed that more than half of the patients were discharged from ED.
Paracetamol overdose and poisoning enquiries received by the Khartoum Medicines Information Centre (KhMIC) in 2022

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Introduction: Paracetamol (acetaminophen) is a commonly and widely used over-the-counter analgesic worldwide. It is also commonly involved in overdoses and poisoning worldwide. Though safe in therapeutic use, overdose and poisoning may lead to severe liver toxicity. Paracetamol overdose and poisoning is well recognized and documented worldwide, however the extent of this, has not been previously examined in the Sudan (1).

The Khartoum Medicines Information Centre (KhMIC) receives telephone enquiries from both the public and health professionals relating to medication use and pharmaceutical exposures including paracetamol poisoning.

This study was carried out to evaluate the volume of telephone enquiries received related to paracetamol overdose and poisoning and determine patterns of paracetamol overdose and poisoning reported to the center.

Objectives:

Identify volume of paracetamol overdose/poisoning enquiries received by KhMIC in 2022

Identify patterns of paracetamol overdose/poisoning enquiries reported to KhMIC

Methodology:

A retrospective review of telephone enquires received by KhMIC between January and November 2022 was conducted. All paracetamol poisoning enquires received were reviewed.

Results: During the study period, a total of 1,163 telephone enquiries were received by KhMIC. Of these the total number of paracetamol overdose and poisoning enquires received were 48 (4.1%) enquiries.

Age distribution: The largest number of enquiries received, 27 enquiries (56.2%), involved children between the ages of 1-12 years. Of these, 13 enquiries (27.1%) involved pre-school children between ages of 4-6 years old, 4 enquiries (8.3%) of school children (ages 7-12 years) and 10 enquires (20.8%) of children between ages of 1-3 years old. Enquiries involving adolescents (12-18 years old) made up 8 enquires (16.7%). Infants (1 month-1 year old) were involved in 5 enquires (10.4%) and neonates (0-28 days old) in only 2 enquires (4.2%). Enquiries relating to adults (above 18 years) were 6 enquires (12.5%).
Circumstances of enquiry: The main cause of overdose or poisoning was accidental in 18 enquiries (37.5%). Medication errors accounted for 17 enquiries (35.5%) and suicidal attempts were documented in 11 enquiries (23%). In 2 enquiries (4%) an adverse drug reaction was noted/suspected.

Paracetamol tablets were the most common formulation reported, with 21 enquiries (44%). 16 enquiries (33%) involved intravenous paracetamol infusions. Paracetamol syrup ingestion was reported in 9 enquiries (19%), paracetamol suspension ingestion and suppository vaginal insertion in 1 enquiry each (2%)

Most medication errors were due to incorrect infusion doses and errors relating to infusion administration (14 out of 17 enquiries).

Toxicity: A toxic dose of paracetamol was reported in 16 enquiries (33%). However, features of poisoning severity with signs of liver injury were reported in 20 enquiries (42%). 17 enquiries (35%) received the antidote N-acetylcysteine.

Conclusion: Though widely available over the counter, our findings suggest that paracetamol overdose and poisoning are not as common in the Sudan compared to other countries. Accidental overdose was the most common cause of overdose reported, though there were reports of use with suicidal intent. Our small study has identified areas of required improvement in prescribing and administration of intravenous paracetamol infusions to prevent and reduce medication errors.
Group Vesicant Exposure in the Republic of Georgia

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Introduction: The differential diagnosis for a vesicular rash is broad and encapsulates multiple infectious and noninfectious etiologies. Considering potential toxic exposures can be crucial for correct diagnosis and treatment and identification of a toxic exposure can allow for appropriate preparation for additional exposed patients.

In July 2018, an employee in a public location in Georgia discovered a yellow liquid on a surface with a strong smell of mustard and burnt wires; she assumed a malfunctioning air conditioner and summoned maintenance. All twelve individuals who spent time in the room experienced dizziness, burning in the eyes and throat, and a cough shortly after exposure. One maintenance worker had direct hand contact with the substance and developed widespread vesicles of varying sizes in multiple body sites over the next 48 hours. The patient was hospitalized for three days of supportive treatment. Three other workers presented with conjunctivitis and were treated with antibiotics and steroid eye drops. The remaining eight patients were asymptomatic on evaluation at the hospital. No patients presented to the hospital with respiratory complaints, although all patients reported transient respiratory symptoms after exposure prior to their evaluation at the hospital. None of the symptomatic patients had neutropenia upon evaluation or follow-up testing.

The liquid was identified to be the vesicle-causing alkylating agent sulfur mustard, which is consistent with the liquid’s description and patient presentations. Exposure to sulfur mustard liquid or gas causes burns to the eyes, skin, and respiratory tract that usually manifest after several hours or up to 48 hours for skin lesions; the clinical manifestations include vesicular blisters, burning and pain in the eyes. Systemic absorption of large or repeated doses of sulfur mustard can be immunosuppressive.

Conclusion: Toxic exposures should be considered in the evaluation of an index patient with a new onset vesicular rash. Rapid identification of toxic exposure can aid in appropriate treatment of the index patient as well as in better identification and care of other potentially exposed persons.
Calcium Channel Blocker Toxicity - The Final Life-saving Measures.

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Introduction: We are reporting the case of a 39-year-old woman known hypertensive who deliberately ingested large unidentified amounts of amlodipine (calcium channel blocker) in a suicidal attempt as well as smaller unidentified amounts of perindopril (angiotensin-converting enzyme inhibitors) and hydrochlorothiazide (thiazide diuretic). She was initially found to be obtunded and in severe hypotension of 57/29mmHg by the ambulance crew, and her hemodynamic instability persisted despite aggressive fluid resuscitation, multiple inotropic agents for vasoressor support, intravenous calcium infusion, and ultra-high-dose insulin therapy. Her initial gases showed metabolic acidosis with a pH of 7.01 and HCO3- of 11, potassium of 2.0, and initial hemoglobin of 10g, which rapidly dropped to 6g over an hour of her presentation. Her initial resuscitative measures were not showing signs of improvement, and the patient went into pulseless electrical activity cardiac arrest; however, return of spontaneous circulation was achieved after ten minutes of cardiopulmonary resuscitation. In lifesaving efforts, she underwent organ support through veno-arterial extracorporeal membrane oxygenation (VA ECMO), sustained low-efficiency dialysis (SLED), was sedated and intubated, and had blood transfusions commenced. The patient gradually improved over the next six days, all organ support measures were stopped, and the patient regained consciousness with no long-term complications of the previous events throughout her follow-ups. The current literature on the management of calcium channel blockers toxicity shows varied results, with one portion showing significant improvement in the overall status of the patient while another portion shows poor efficacy. In our case, the patient showed complete recovery despite the severe progression.
Tizanidine: The Lethal Withdrawal

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Introduction: We report the case of a 41-year-old male who presented to the Emergency Department with insomnia, vomiting, diaphoresis, and visible signs of autonomic disturbances. Initially, a differential diagnosis of withdrawal syndrome was made; however, it was also accompanied by several others, including acute abdomen, acute cholecystitis, and other possible underlying infections. Other causes were ruled out, and extensive, detailed history that revealed the patient’s long history of substance abuse, psychiatric history, and a previous diagnosis of Tizanidine withdrawal that presented similarly two years prior to this incident, that a diagnosis of Tizanidine withdrawal was made. Tizanidine is a muscle relaxant that acts by exerting an agonistic effect on noradrenergic alpha-2 receptors, increasing presynaptic inhibition.

As a consequence, its abrupt cessation results in a withdrawal syndrome that is due to an adrenergic surge. The issue with Tizanidine withdrawal is that there aren't many reported cases, and as such, its diagnosis can easily be missed, which can eventually lead to catastrophic consequences. Our patient was managed and stabilized in the ED with rate-controlling medication, antiemetics, an alpha-2 adrenergic agonist, and a benzodiazepine, after which he was admitted to MICU for follow-up after no further management could be sought in his current location. Tizanidine withdrawal diagnosis is a difficult one to make and requires elaborate medical history taking and should be suspected in patients with symptoms suspicious of withdrawal syndrome. It should be prescribed with care, especially to psychiatric patients, and side effects, including those of abrupt cessation, should be explained in detail prior to prescription.
A rare, late complication of digoxin overdose: myocardial injury

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Introduction: Digoxin is basically a cardiac glycoside used in chronic congestive heart failure and treatment of some arrhythmias, characterized by a decrease in cardiac output, and characterized by systolic dysfunction of the ventricles (1). However, since the therapeutic/toxic dose range (0.6-1.2ng/mL) is narrow, digoxin poisoning can easily develop(2). There is no specific arrhythmia for digoxin toxicity rather a range of arrhythmias can be present such as various degrees of AV block, premature ventricular contractions, bradycardia, and even ventricular tachycardia (3). Review of literature however showed no report of elevated troponin in the setting of digoxin toxicity.

Case Report: A 28-year-old male patient was brought to emergency department due to drug overdose. Approximately three hours before admission to the emergency department, the patient had taken 40 tablets 0.25mg digoxin (Digoxin-Assos®, Assos Pharmaceuticals), with the intention of committing suicide. Upon arrival, glasgow coma scale (GCS) was 15. He was oriented and cooperative. In his vital parameters, blood pressure: 155/55mmHg, heart rate: 60/min, fever: 36.4°C and pulse oximetry: 98%. ECG was normal sinus rhythm at 67/minute (Figure 1). The patient was admitted to the toxicology intensive care unit for close monitoring and treatment. The serum digoxin level was 4.43ng/ml. The other laboratory results were normal. In follow-up, no hypotension or arrhythmia developed. ECG was normal sinus rhythm on follow-up. After three days, he was referred to the psychiatry clinic. On the fourth day of the psychiatry service follow-up (total 7th day) hypotension and bradycardia were developed. ECG was sinus bradycardia at 53/minute and there was downsloping ST segment depression in inferolateral leads (Figure 2). Control ECG was normal sinus rhythm (Figure 3). However, troponin levels increased progressively (30,485,538ng/l) in a day he was taken back to the toxicology intensive care unit. System examinations were natural. Left ventricular ejection fraction was 55 % and there wasn’t any abnormality on echocardiography. D-dimer level was 790ng/mL(normal range 0-500ng/mL). There wasn’t pulmonary embolism and aortic dissection on thorax and abdominal CT angiography. The patient was taken to coronary angiography for diagnosis and treatment, but no thrombus was observed. In the follow-ups, after an increase in blood pressure and heart rate, norepinephrine infusion dose was reduced and stopped. Troponin levels gradually decreased (426,300,181,67,12.6 ng/l).

Discussion: Digoxin toxicity may develop by increasing the frequency of administration or gradually increasing the dose, because of the narrow therapeutic window (4). Although patients with heart failure and renal disease are required to follow up closely on the drug level, they are at increased risk for developing toxicity, especially when digoxin is combined with diuretics that cause electrolyte imbalance, hypokalemia or hypercalcemia (5). On the literature, digoxin overdose related myocardial injury has never been reported. No pathology that could cause troponin elevation and myocardial damage was detected in our patient. This suggests that
myocardial damage may be a late complication due to digoxin poisoning. The follow-up period should be extended due to hypotension, bradycardia and myocardial damage that may develop in the late period in digoxin poisoning. In the light of this case, we suggest that patients presenting with digoxin overdose may develop late complications and the follow-up period should be extended.
A rare cause of botulism due to gastric injection of Botox(R)®

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Introduction:

Obesity is a serious public health problem that is rapidly increasing in the world and in our country. According to the latest data of the Turkish Ministry of Health, more than 30% of the adult population is obese in Turkey. Diet and exercise are the first approach in the treatment of obesity. The search for an effective non-surgical method continues for individuals who cannot be successful with diet and exercise. In particular, endoscopic applications are a constant research topic. The possible risks of surgical methods and problems such as nutritional deficiency in the long term attract the attention of patients and practitioners to the endoscopic methods. Gastric botulinum toxin (BTX) is one of the most widely used endoscopic applications in our country recently. In this case report, we aim to present a case with neuropathy findings after stomach Botox(R).

Case Report: A 44-year-old female patient admitted to the emergency department with complaints of weakness, shortness of breath, blurred and double vision. The patient started to complain of weakness, shortness of breath and blurred vision immediately after Botox(R) and double vision started 3 days later. On the 4th day after Botox(R) application, she applied to the emergency service because her complaints increased.

Antitoxin was given to the patient in emergency department, considering the effect of botulinum toxin. The patient, whose complaints of blurred and double vision continued, was admitted to toxicology intensive care unit. GCS: 15, general condition was moderate-good. She had generalized weakness, malaise, dysphagia, and dyspnea. After the initial evaluation, examination and close hemodynamic follow-up were taken. Chest, neuro-imaging and laboratory tests were normal. There wasn’t any abnormality in the electromyography (EMG). The patient was followed up closely for 4 days. There wasn’t any additional symptoms or pathology in her neurological (included eye) evaluations. Serious respiratory distress did not develop that required mechanical ventilation. Her complaints regressed in the follow-up. On the 8th day after Botox(R) application, the patient was discharged with full recovery.

Discussion: The development of neuropathy after botulinum toxin injection for cosmetic or medical treatment is a very rare condition. In our case, there were signs of especially cranial nerve involvement and proximal neuropathy, which developed after botulinum toxin-A applied
to the stomach for weight loss. In addition, BTX-A is also used in the treatment of achalasia, which is a motility disorder of the gastrointestinal tract. BTX-A prevents the contraction of smooth and skeletal muscles by inhibiting the release of acetylcholine at the neuromuscular junction (3). With the injection of BTX-A into the stomach, it delays gastric emptying by preventing gastric motility. In this way, people are expected to lose weight by eating less by providing satiety for a longer period of time (5). Unexpected findings that develop after botulinum toxin applications for cosmetic and medical treatment are generally short-lived and temporary and heal without sequelae. The literature on this subject is at the level of case reports.
Successful Management of Carbamazepine Overdose with Hemodialysis

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Introduction: Carbamazepine is a medication used to treat epilepsy and trigeminal neuralgia and as a mood stabilizer in bipolar disorder. Due to high lipid solubility, it quickly passes into the brain after oral administration. Both the carbamazepine itself and its active epoxide metabolite are responsible for toxic effects (1). Despite its high affinity for plasma proteins and its lipophilic nature, which gives it a wide distribution volume, there are studies showing that it can be successfully treated with hemodialysis. In this article, we aim to present a case of carbamazepine poisoning successfully treated with hemodialysis.

Case Report: A 23-year-old male patient with epilepsy was brought to the emergency department due to drug overdose. Approximately three hours before admission to the emergency department, the patient had taken 20 tablets of his own medication, carbamazepine (Tegretol® CR, Novartis), with the intention of committing suicide. He was brought to the emergency department after his family noticed vomiting and confusion. Upon arrival, glasgow coma scale was 13, and he was drowsy. In his vital parameters, blood pressure: 105/55mmHg, heart rate: 80/min, fever: 36.4°C and pulse oximetry: 98%. ECS was normal sinus rhythm at 82/minute. The patient was lethargic, had poor cooperation, and was agitated. No other pathology was detected except for midriasis. Multiple dose activated charcoal (MDAC) could not be done due to confusion. The patient was interned to the toxicology intensive care unit for close monitoring and treatment. The serum carbamazepine level was 39.4 μg/ml. A hemodialysis catheter was immediately inserted and hemodialysis was performed for four hours. After hemodialysis, the serum carbamazepine level was 18.8 μg/ml. The following day, the patient's consciousness improved, but the agitation continued. The control serum carbamazepine level was 10.2 μg/ml. On the fourth day the patient was referred to the psychiatry clinic since he had active thoughts of suicide.

Discussion: Carbamazepine is one of the drugs whose toxicity can be monitored by serum level. Serum carbamazepine level should be checked every 4 hours in overdose (2). Normal serum level is 4-12 μg/ml, serum toxic level is >20 μg/ml, and toxicity-related symptoms are seen at a level of >40 μg/ml (3,4). In acute intoxications, coma, seizures, agitation, hallucination, ataxia, dizziness, mydriasis, nystagmus, respiratory depression, apnea or pulmonary edema can be seen. In patients whose serum carbamazepine level cannot be detected, the diagnosis of severe toxicity is made with the presence of recurrent seizures, life-threatening arrhythmias, and severe respiratory distress requiring mechanical ventilation. MDAC is recommended in carbamazepine poisoning. However, repetitive administration of activated charcoal could not be performed due to unconsciousness and risk of aspiration in our case. The main treatment in severe poisoning is intermittent hemodialysis. Extracorporeal methods are strongly recommended by EXTRIP in the presence of life-threatening arrhythmias and resistant seizures; It has also been stated that hemodialysis can be terminated when the serum carbamazepine level is <10 μg/ml or in the presence of clinical improvement. As a matter of fact, re-hemodialysis was not considered in our
case, since clinical improvement was observed in the follow-ups and the serum carbamazepine level was in a decreasing trend.
Successful Management of Colchicine Overdose

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Introduction: Colchicine is an antimitotic drug used in the treatment of acute attacks of familial Mediterranean fever (FMF), gouty arthritis and pseudogout. Although intoxication is not common in the emergency department, it is very important because it causes life-threatening symptoms. Acute poisonings may present with a clinical manifestation ranging from gastrointestinal and hematological changes to cardiogenic shock.

Hemodialysis or plasma exchange is not effective in colchicine poisoning because colchicine is rapidly distributed to tissues and has high affinity for intracellular binding sites. In this article, we aimed to present a case of massive dose colchicine followed in the toxicology intensive care unit and successfully treated with plasmapheresis, who presented to the emergency department with gastrointestinal system symptoms.

Case Report: A 32-year-old female patient was brought to the emergency department due to drug overdose. She took 90 tablets of 0.5 mg colchicine (total 45mg, 0.75mg/kg), which is her husband's drug, for suicidal purposes approximately 8 hours ago. The patient weighed 50 kilograms, and the total of 45mg of colchicine taken was calculated to be 0.9mg per kilogram of weight (>0.5mg/kg is toxic). She had complaints of abdominal pain, nausea and dizziness. Gastric lavage is not performed or activated charcoal is not given. Intravenous (IV) hydration and symptomatic treatment were initiated. In the follow-up, hemogram revealed lymphopenia and one hour plasmapheresis was applied with 10 U fresh frozen plasma (FFP). It was observed that the lymphocyte count increased in the control hemogram. There was also a regression in clinical findings. Blood sample were taken from the patient for colchicine level before and after plasmapheresis and was sent to the laboratory. The serum colchicine value was 1.02 ng/dl before plasmapheresis, 0.91 ng/dl at the 1st hour and 0.48 ng/dl at the 8th hour after plasmapheresis. The patient was followed up closely for 4 days in the toxicology intensive care unit. No pathology developed in clinical or laboratory examinations. The patient was transferred to psychiatry on the fifth day.

Discussion: Colchicine overdose is a poisoning that causes severe toxicity, in which death is inevitable in massive intakes. Today, there is no established antidote for colchicine. There are limited case-level studies showing that the benefits of extracorporeal methods for colchicine overdose in the literature.
In our case, serum colchicine levels were measured before, at the 1st and 8th hours after plasmapheresis. The serum level before plasmapheresis was 1.02 ng/dl, after plasmapheresis 0.91 ng/dl at the 1st hour, and 0.48 ng/dl at the 8th hour of colchicine. The resulting findings showed that a significant decrease in serum level occurred after plasmapheresis. These data show that plasmapheresis can be considered as a treatment option in acute poisonings. However, more concrete information and studies are needed.
Knowledge, Attitude and Awareness of Emergency Physicians and Residents Regarding Radiological Emergencies

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Background: Radiological emergency preparedness and response have been increasingly recognized as an important component of emergency preparedness and public health. Previous studies have shown that medical providers feel specifically unprepared to respond to radiation incidents. Current knowledge and attitudes of emergency medicine residents and physicians in Oman regarding their ability to provide care to victims of a radiation disaster is unknown.

Objectives: To assess the knowledge, attitude and comfort level of emergency residents and physicians in Oman in the management of radiation emergencies and related injuries.

Methods: An electronic survey was created and emailed to 44 emergency residents (in their first to fifth year of training) and 57 board-certified emergency physicians during the period of May 24 and June 14, 2022. In addition to demographics, the survey explored attitude, knowledge, and level knowledge regarding radiation emergencies. Descriptive statistics were used to analyze the results. Results. The survey response rate was 62.7% (N=69/110). Sixty–Two percent of the total responders (N=43/69) had not attended any training in radiological emergencies. The majority of the responders had never used nor attended training on operating radiation detection devices. Self-reported knowledge differences were assessed using 10 knowledge questions. Knowledge gaps were identified as the median score of self-reported knowledge was 50/100. Fifty-nine percent 59% (N=41/69) of the participants felt that they needed educational programs and materials. Education courses followed by lectures were the preferred method of education by participants.

Discussion and conclusion: Our results suggest a need for additional radiological incidents preparedness training for emergency medicine residents and physicians in Oman. Training should include performance of a radiation detection survey, decontamination and management of radiation injuries.
Exotic snake species envenomation drill by an urban zoo, a regional poison center, and an academic medical center (on behalf of the Zoo Atlanta Practice Exercise Planning Group)

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Introduction: Many zoos house venomous species that pose an occupational risk of envenomation to staff. These zoos maintain policies and procedures for urgent envenomation medical care and antivenom administration and keep on site or have access to appropriate antivenoms. The study purpose is to evaluate the current exotic envenomation guidelines through a simulated snake bite.

Methods: The drill was a collaboration between the zoo, emergency medical service, the hospital’s emergency department and pharmacy department, and the regional poison center. Checklists were created to document the required actions for each part of the process. The drill date and time were communicated to involved parties and consisted of four phases: the bite response at the zoo, the EMS response, RPC consultation, and medical and antivenom management by the hospital’s ED and toxicology teams.

Results: During the zoo phase, the zoo dispatch center mistakenly reported a king cobra instead of a cape cobra snakebite to RPC and EMS. Despite that, the zoo still provided the appropriate antivenom due to an internal process that links the snake identity to a numeric system. With the assistance of the zoo, EMS located the patient for transportation with the antivenom and a zoo staff member to the hospital. The RPC notified the ED communications center, provided verbal instructions, and faxed guidelines. However, the materials were not received by the physician because the number that was provided sent the material to an unreachable electronic inbox. The preparation of antivenom was completed at bedside by a clinical pharmacist which decreased admixture time by 13 minutes compared to admixture by the inpatient pharmacy (previously reported). The toxicologists arrived in a timely manner and recommended administering the antivenom. The antivenom did not have a pre-built order within the electronic medical record (EMR) but was entered with pharmacy assistance. No test dose was administered, however there was a discussion regarding its initial dose and infusion rate. The time from bite to initiation of the antivenom administration was 74 minutes. The FDA was contacted when the patient arrived at the hospital through the emergency hotline and approval was obtained verbally. Hospital IRB approval was not requested due to the life-threatening nature of the situation and because the notification process was not available at the time of the drill.

Discussion: The procedures set in place by the zoo and RPC were clearly documented, however, were met with few problems and delays upon practice. Communication issues included the misidentification of the snake species to the RPC (later rectified). Envenomation incidents should be reported by herpetology staff instead of the zoo dispatch center. Pre-position
guidelines in the ED or send with the antivenom brought by the zoo staff. An order set should be built in the hospital’s EMR and should include the antivenom dose, lab tests, and adjunct medications. We suggest conducting an unannounced drill to allow a more realistic assessment of the process.

Conclusion: The drill has identified several items to improve the process of responding to a snakebite at the zoo.
Comparison of Whole Blood Clotting Time, INR, and Sonoclot - Activated Clotting Time in Management of Hemotoxic Snake Envenomation in a Tertiary Care Hospital of North India

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Introduction: Traditional monitoring of viperine venom-induced consumptive coagulopathy is by the WBCT20 (whole blood clotting time over 20 minutes). This study compared monitoring of VICC using the traditional WBCT20 against INR and activated clotting time data from Sonoclot.

Thirty patients of VICC were enrolled serially in groups of 10 each, in Group 1, VICC monitoring was by WBCT20, in Group 2 by INR, and in Group 3, ACT data from Sonoclot. The primary endpoint was the resolution of VICC.

Results: The mean age of the entire cohort was 39.2 years and the commonly bitten site was the lower limb in 16 cases. Pain occurred at the bitten site in 96%, swelling 80%, and oozing of blood in 77%. Mucocutaneous bleeding occurred in 8 cases requiring packed red blood cell transfusions in all and fresh frozen plasma and platelet-rich plasma in 3 each. Acute kidney injury (AKI) requiring hemodialysis was seen in 12 cases. On inter-group analysis, the time to resolution of coagulopathy in both Groups 2 & 3 was significantly shorter than in Group 1. The mean hospital stays of all three groups and mean dose of antivenin administered did not show any statistically significant intergroup difference.

Conclusion: In this study, for viperine VICC, both INR and Sonoclot ACT compare well with the currently accepted standard of WBCT20 in monitoring the resolution of the VICC. Moreover, using either the INR alone or Sonoclot ACT show a lesser time to VICC resolution and has the potential to optimize antivenin dosage.
The economic impact on the introduction of the antidote N-Acetyl-Cysteine in the management of the acute paracetamol intoxication in Algeria.

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Introduction: N-acetylcysteine (NAC) is the specific antidote treatment of paracetamol intoxications, which aims to prevent the complications related to them. The objective is to highlight the economic impact of the introduction of the antidote N-Acetylcysteine in the therapeutic protocol of paracetamol intoxications in Algeria.

Materials and methods: A local simulation was carried out to estimate the financial impact related to the introduction of the IV form in the Algerian market for the management of acute paracetamol poisoning (APP). An estimation of the global expenses of the management of APP cases recorded at the level of the poison control center (PCC) between 2017-2021 with the Oral NAC according to the 72h protocol was carried out. To compare the costs of APP management if the use of the IV form during the same period and on the same patients. The results were expressed in Algerian Dinar (DZD).

Results: The use of IV NAC resulted in a saving of 12700.22 DZD per patient per incident, reducing the length of stay from 72 to 21 hours. In the end, a 20.2% reduction (18636498.59 DZD vs 14864533.25 DZD) in overall expenses over the last five years is estimated at 3771965.34 DZD. Conclusion: In addition to the advantages that the IV form of NAC has in the management of APP, the analysis revealed that the introduction and registration of this form could significantly reduce the expenses related to this intoxication, comparing the duration of the protocol (length of hospitalization) and the unit price of the IV form with that of the Oral form.