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ABSTRACT PRESENTATIONS

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Oral Abstracts

1

Study On: Pattern Of Acute Poisoning At Rozh Halat Emergency Hospital-Erbil-Kurdistan-Iraq.

Karwan Mohammed[1,2], Shakawan Ismaeel[1], Habib Ahmadi[2]

[1]Kurdistan Higher Council of Medical Specialties, Erbil, Iraq. [2]Rozhawa Emergency Hospital-Erbil, Erbil, Iraq

Abstract

Background: Acute poisoning by drugs and chemical agents is a global medical emergency and carries a high morbidity and mortality rate. The epidemiology of acute poisoning varies between countries and different regions. Information on the patterns of acute poisoning in Kurdistan Region hospitals is limited, this study attempted to fill this gap by examining poisoned patients in Erbil, Kurdistan Region-Iraq.

Objective: Our objective is to investigate the demographical and etiological factors, pattern, and outcome of acute poisoning in Erbil, Kurdistan Region- Iraq.

Methods: A prospective observational study was conducted over a period of one year between 1st Feb.2016 and 31st. Jan 2017. The age of 12 year or greater of either sex with acute poisoning were included. A specially designed Performa was used to collect demographic data, type of poison involved, cause of poisoning, management, disposal as well as outcome of the acute poisoned patients who were admitted to Rozh Halat Emergency Hospital, Erbil-Kurdistan Region.

Results: A total 200 cases of acute poisoning were recorded. Out of all, 76.5% were female and 23.5% were male. Most of them were young adults with the mean age of (24.80±8.25 SD). Commonest type of poisoning was paracetamol (20%). The 83% were due to suicidal attempts and 17% were accidental. Most patients were treated with conservative measures, and about 33.5% and 31.5% of the patients were taken specific antidotes and gastric lavage respectively, in which N-acetylcysteine was most common antidote. Most Patients (93%) were sent home with full recovery, 4% had left hospital against medical advice, but 3% had significant complications and 1% died.

Conclusion: According to our study most acute poisoning cases affected adult females and were intentional. The study also showed that the most prevalent acute toxic agent was paracetamol. Patients admitted to hospital due to acute poisoning had good short-term outcome.

2

Scorpion Stings Reported To The UK National Poisons Information Service (NPIS) 2013-2022

Emma Moyns[1], Hayley Williams[1], Pardeep Jagpal[1], Euan A Sandilands[2], Laurence A Gray[3], Ruben HK Thanacoody[4], Sally M Bradberry[5]

[1]National Poisons Information Service (Birmingham unit), Birmingham, United Kingdom. [2]National Poisons Information Service (Edinburgh unit), Edinburgh, United Kingdom. [3]National Poisons Information Service (Cardiff unit), Cardiff, United Kingdom. [4]National Poisons Information Service (Newcastle unit), Newcastle, United Kingdom. [5]National Poisons Information Service (Birmingham unit), Birmingham, United Kingdom

Abstract

Background: Scorpion venoms are highly variable in both chemical content and clinical toxicity, containing various proportions of neurotoxins, hemotoxins and many other substances. Only one scorpion is known to be established in the UK – the non-native European Yellow-tailed scorpion (*Tetratrichobothrius flavicaudis*), which is found predominately on the Isle of Sheppey. We sought to review the incidence of scorpion stings reported to the UK National Poisons Information Service (NPIS) over ten years.

Methods: A retrospective analysis of enquiries involving scorpion stings reported to the UK NPIS between 1 January 2013 and 31 December 2022 was undertaken.

Results: Eighteen scorpion stings in 15 adults and three children (aged 4, 11 and 16) were reported to the NPIS. Enquiries originated from hospitals (n=13), primary care (n=3) and other sources (n=2).

The sting occurred in the UK in 12 cases. In 7/12 cases scorpions were discovered in luggage returning from the Caribbean (n=2), Cyprus (n=1), Kenya (n=1), Costa Rica (n=1), Zimbabwe (n=1) and an unknown location (n=1). One scorpion was discovered in a shipment of furniture from Indonesia. In the remaining four cases occurring in the UK, three scorpions were being kept as pets (Tanzanian Red-Clawed scorpion, Desert Hairy scorpion, and Emperor scorpion). In six cases the sting occurred overseas (India, Kenya, Thailand, Pakistan, and North America) including one during a flight to the UK from South Africa.

The site of the sting was recorded in 17 cases. The majority (n=9) of stings involved the upper extremities. Seven stings involved the lower extremities. One patient was stung on the back. Most patients (n=15) reported a localized reaction with symptoms including pain, erythema, and mild oedema. Paranesthesia was reported in three of these cases. Two patients reported no symptoms. The Poisoning Severity Score was recorded as none (n=2), minor (n=15) and moderate (n=1). In the moderate case the patient had been stung on the foot by an unknown scorpion in the Nevada Desert, USA, returning to the UK 13 days later. At the time of NPIS consultation the foot was described as very swollen and painful with ulceration, discoloration, and possible infection. The patient was managed with symptomatic and supportive care. The advice of a clinical toxicologist was sought in 11/18 cases, of which 6 were referred to a clinical toxinologist for further specialist advice. Antivenom was not recommended in any of the 18 cases.

Conclusion: Scorpions can be unintentionally transported globally, often in luggage or occasionally in shipments of freight. They are also in some cases kept as pets. In our case series no scorpion sting resulted in serious illness. Healthcare professionals need to be aware of the potential for patients to present to medical services following stings that may occur from non-native species. Rapid access to expert clinical advice is available in the UK on a 24-hour basis through the National Poisons Information Service.

3

Activated Charcoal In GI Decontamination: A Retrospective Study Of Activated Charcoal Overuse In A Single Pediatric Emergency Department

Jenan Salmeen, Abdullah Alenzi, Abdullatif Aloumi

MOH, Kuwait, Kuwait

Abstract

Objective: Activated charcoal (AC) is administered for gastrointestinal decontamination after some poison ingestions. The time window of AC efficacy after poison ingestion is widely considered to be 1 hour, though some consider this time frame too conservative. While activated charcoal has been shown to significantly reduce the absorption of many ingested toxins, studies demonstrating AC impact on patient-oriented outcomes such as mortality, morbidity, or length of hospital stay are lacking. Many considerations should be taken before using activated charcoal such as toxin type, route, time of ingestion and knowing the absolute and relative contraindications for its use. In this retrospective study we review the use of AC in a pediatric emergency department (ED) relative to the ingested xenobiotic as an indication of its use.

Methods: A retrospective chart review of a single pediatric ED pharmacy from 1st of June 2022 to 31st of August 2023 was conducted. All orders for AC administration during this period were retrieved and reviewed, with dose of AC and the exposure product documented. Each AC order was assessed by 2 medical toxicologists, a poison specialist, and an emergency medicine physician to determine if AC administration was: 1- likely indicated, 2- less likely indicated, 3- unlikely indicated, based on the toxicity of the involved xenobiotic and its adsorption to AC.

Results: AC orders for 144 patients were collected and reviewed. Out of these, 21/144 (14.58%) were likely indicated, 37/144 (25.69%) were less likely indicated, and 86/144 (59.72%) were unlikely indicated.

Discussion: AC is frequently used for gastrointestinal decontamination in the poisoned patient. Although severe complications are relatively rare, if occur can be devastating. Adverse effects and complications of AC administration are most commonly nausea, vomiting and abdominal discomfort, but severe and devastating complications such as bowel obstruction and aspiration with chemical pneumonitis as well as fatality have been reported. AC should only be administered to patients with clear indications and no contraindications to its use. This study finds overuse of AC in a single pediatric emergency department, which could be representative of AC use in other pediatric and general emergency departments.

Conclusion: AC appears to be inappropriately used in 59.72% of pediatric ED cases. Outreach education to improve understanding and awareness of AC therapy among healthcare providers, and the utilization of the poison center to optimize the care and reduce the risk of complications in the poisoned patients.

4

The Economic Burden Of Acute Poisoning – 8-Year Analysis Of Direct Costs In A Pediatric Poison Center

Andreea Lescaie[1,2], Coriolan Ulmeanu[1,2], Viorela Nitescu[1,2]

[1]" Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania. [2]Pediatric Poison Center, "Grigore Alexandrescu" Emergency Clinical Hospital for Children, Bucharest, Romania

Abstract

Background: Poisoning in pediatric cases, whether intentional or unintentional, constitutes a preventable medical hazard. Therefore, the costs associated with medical management can be avoided by implementing parental educational programs and systematically screening adolescents at risk of self-harm. This study aimed to evaluate the direct costs associated with acute poisoning cases, with the objective of raising awareness for the necessity of initiatives that could yield the most significant cost reduction.

Methods: The invoices pertaining to patients aged 0-18 years old hospitalized for acute poisoning in a clinical toxicology unit were retrieved from January 2015 to December 2022. The data were categorized by admission year and the substance involved. The costs were converted from the national currency (RON) to euro using the annual average conversion rate. Statistical analysis was conducted using XLSTAT software.

Results: The study included a total of 6062 cases of acute poisoning, with associated direct costs amounting to 1,572,702 euros. Although the number of annual cases remained consistent throughout the study period, annual expenses exhibited a significant increase of 34% from 2015 to 2022 (Fig.1). The greatest financial burden on overall healthcare costs was generated by poisoning with non-opioid analgesics (20.68%) and sedatives/hypnotics/antipsychotics (12.28%). Notably, acetaminophen poisoning was responsible for 70% of the costs associated with non-opioid analgesics poisoning. The least significant contributions to overall costs were related to poisoning with antimicrobials, plants, and topical preparations. The average cost per case of poisoning was EUR 253 (SD=79.35; Fig.2). It is noteworthy that poisoning with caustic substances, non-opioid analgesics, and pesticides resulted in significantly higher average costs (z=1.72, 1.45, and 1.28, respectively). In contrast, poisoning with plants, ethanol (beverages), and carbon monoxide were associated with significantly lower average costs (z=-1.32, -1.25, and -1.23, respectively). The overtime increase in the average cost per case was not uniform for all substances (Fig.3). For instance, some substances, such as caustic substances, hydrocarbons, and fumes/gases, have experienced an increase in average cost per case, exceeding 100% from 2015 to 2022. However, some substances, such as mushrooms and sedatives/hypnotics/antipsychotics, exhibited a cost modification of less than ± 5% during the same period. The only type of poisoning that registered a decrease in direct costs from 2015 to 2022 was pesticide poisoning, suggesting that market regulations for these substances have been effective in reducing associated costs.

Conclusion: The substantial increase in annual expenses, unrelated to the number of treated patients, indicates the necessity of preventive initiatives. One of the most crucial areas of intervention is non-opioid analgesic poisoning, particularly acetaminophen, as these instances account for the highest proportion of costs and exhibit a higher average cost per case. The increase of more than 100% in the average cost per case for certain substances may be associated with the severity of poisoning, suggesting a potential area for cost-reduction programs.

5

Trends In Substance Abuse Exposure Among Adolescents From 2018 - 2023: A 5-Year Retrospective Analysis

Mahiya Nabilla Rosaria Abdul Hamid, Nur Azzalia Kamaruzaman, Sazaroni Md Rashid, Mohd Fadhli Razali

Universiti Sains Malaysia, Penang, Malaysia

Abstract

Background: Incidents of youth substance abuse are on the rise, with a belief that this often begins during adolescence. The National Health and Morbidity Survey 2022 highlights that three in four Malaysian adolescents have experimented with drugs by the age of 14, including inhalants (2.8%), mitragynine or kratom (2.3%), marijuana (1.1%), and amphetamine or methamphetamine (1%). Contributing factors to this trend involve family or social issues, leading to substance abuse exposure, causing social disorder and harm to society.

Methods: This study delves into the evolving patterns of adolescent substance abuse over five years, from 2018 to 2022, using data from cases reported to the Malaysia National Poison Centre. Records of all poisoning cases received by the poison center from 2018 to 2022 were retrospectively reviewed. The data was analyzed according to age group, focusing on adolescents aged 10 to 19 years, gender of cases, circumstances, and type of substance abuse involved.

Results: Of the 31 reported cases, Malays constitute the majority at 71%, compared to non-Malaysians (10%), Indians (7%), Chinese (3%), unknown ethnicity (6%), and other Malaysians (3%). The cases predominantly involve males (74%), with urban areas on the west coast reporting higher frequencies, particularly in Selangor (23%), Penang (13%), Johor (10%), Kedah (10%), Malacca (7%), and Perak (6%). Most poisoning incidents occurred at home (81%), with a smaller proportion in academic institutions (7%). Substance exposures include methamphetamine (23%), amphetamine (20%), mitragynine (16%), psilocybin (16%), and cannabis (7%) for single-agent exposure. Combinations of two agents account for 12%, and three agents for 6%. Most cases were intentional (94%), primarily for abuse (77%). Acute exposure dominated at 71%, followed by chronic exposure (16%), acute on chronic exposure (10%), and unrecorded/unknown exposure (3%). The reported severity ranged from moderate poisoning (52%) to severe (23%) and minor toxicities (22%).

Discussion: Noteworthy is the shift in prevalence from 2018 to 2019, with amphetamine, methamphetamine, mitragynine, and cannabis being more common. However, in 2020, cases of inhalation of vape liquids laced with psilocybin began emerging, peaking in 2022. This trend is paralleled in the younger adult population (ages 20 to 35), with inhalation of vape liquids laced with psilocybin cases quadrupling from 2021 to 2022. These cases often lead to moderate to severe toxicity, including seizures and loss of consciousness.

Conclusion: The findings underscore a worrisome increase in adolescent substance abuse, with emerging substances like psilocybin gaining prominence. This emphasizes the urgency for the poison Centre and toxicovigilance to implement targeted interventions, awareness campaigns, and policies. These efforts aim to address and mitigate the evolving landscape of substance abuse among adolescents, prioritizing public health and societal well-being.

6

Characterization And Clinical Outcome Of Patients Presented With Acute Or Chronic Digoxin Toxicity To A Tertiary Care Hospital, A Retrospective Review

Aida Al harsoosi[1,2], Badria Alhatali[3,4]

[1]Ministry of health, Al buraimi, Oman. [2]Oman Medical Specialty Board, Muscat, Oman. [3]ministry of health, muscat, Oman. [4]Oman Medical Specialty Board, muscat, Oman

Abstract

Background: Digoxin toxicity still exists due to its narrow therapeutic index and complex pharmacokinetic profile. Previous studies showed that approximately 1% of congestive heart failure patients on digoxin will develop toxicity.

Objectives: Our study aims to evaluate the characteristics of patients presented with acute or chronic digoxin toxicity, their clinical presentations, ECG and laboratory findings, and the use of digoxin immune fragments as an antidote.

Methods: This was a retrospective cross-sectional descriptive study for patients presented to Royal hospital emergency department with signs of toxicity and digoxin levels 2.6 nmol /L or more from January 2009 to January 2019.

Results: 54 patients were found to have digoxin toxicity, 59.3% (N=32) showed clinical manifestations of chronic toxicity. The age ranged between 26-90 years (mean =69.3 years). The most common symptoms were gastrointestinal such as vomiting in 37% (N=20), abdominal pain in 35.2% (N=19), and nausea in 33.3 % (N=18). cardiac and chest complaints such as chest pain, palpitation, syncope, and dyspnea or shortness of breath; were the second most common followed by neurological symptoms. None of the patients reported visual disturbance or hallucinations. Out of ECGs uploaded in the patients' charts, regularized or slow atrial fibrillation was reported in 29.6 % (N=16) of patients, bradycardia in 1.9 % (N=1), and junctional rhythm in 5.6 % (N=3). Serum digoxin level ranged between 2.7 nmol/L and 10.5 nmol/L with a mean of 4.65 nmol/L. 45.1% (N=23) of patients had evidence of acute on chronic kidney disease, of which 47.8% (N=11) had acute toxicity and 52.2% (N=12) were chronic toxicity cases. With regards to serum potassium levels, 41.2% (N=21) of patients had hyperkalemia while 3.9% (N=2) had hypokalemia, and the rest, 54.9% (N=28) had potassium levels within normal ranges. Out of the total patients included in the study, 17% (N=14) were admitted to the intensive care unit or cardiac critical care, 45.3% (N=24) were admitted to a high dependency unit, and a total of 11.3% (N=6) patients were discharged home. patients who received digoxin immune fragments, 100% of them received it within 24 hours after presentation, where 5 patients received it within 4 hours of presentation and 6 patients received it after 4 hours. In patients who received digoxin immune fragments within 4 hours, the survival to discharge was 80% compared to patients who received it after four hours (66.7%). The mean length of stay for patients who received digoxin immune fragments was 6.36 vs 6.65 for patients who didn't receive it with a p-value of 0.901.

Conclusion: Digoxin is still being prescribed for atrial fibrillation and heart failure despite the narrow therapeutic range and complex pharmacokinetic profile. we need a clear protocol to manage patients with acute and chronic digoxin toxicity.

7

Poisoning Telephone Enquiries Received By The Military Hospital Drug & Poison Information Centre (DPIC) Between 2022-2023

Nasraldeen Elgaali[1], Tayseer Mohammed[2], Hisham Abdelrahim[2], Marwa Abdelrahman[1], Muhammad Elamin[3]

[1]Military Hospital Drug & Poison Information Centre, Omdurman, Sudan. [2]Khartoum Medicines Information Centre, Khartoum, Sudan. [3]National Poisons Information Service (Birmingham unit), Birmingham, United Kingdom

Abstract

Background: Established in 2008 and based in Omdurman, Khartoum state, the Military Hospital Drug & Poison Information Centre (DPIC) is one of a few centres in the Sudan providing toxicological information and advice on the management of poisoned patients, in addition to its role in providing a medicines information service. Other services provided by DPIC include pharmacovigilance activities, health advocacy, community awareness raising, and organizing educational and training activities for undergraduate and postgraduate pharmacy students.

Methods: A retrospective study was conducted to review all poisoning enquiries received by the DPIC from February 2022 to February 2023.

Results: The DPIC received a total of 66 enquiries between February 2022 and February 2023. Of these thirty enquiries (45.4%) were poisoning enquiries. Characteristics of poisoning enquiries received (n=30): Twenty-three patients were males (76.7%). Infants and toddlers (< 5 years old) comprised the largest age group with sixteen cases (53.3%), followed by nine (30%) adults (>18 years old), and five (16.6%) children between 6 -12 years old. Twenty-three enquiries (76.7%) were related to medicines, whereas the other seven (23.3%) were related to other chemicals. The commonest reported drugs were vitamins and minerals (7 enquiries; 23.3%), followed by hormones and analgesics with four enquires (13%) each. Three enquiries (10%) involved central nervous system drugs. Other reported drugs included antimalarials, antihistamines, antidiabetics, antihypertensives, immunosuppressants and antibiotics. Tablets were the commonest formulation reported (19 enquiries; 63%). 2 enquiries involved injections (6.6%) and syrups and suspensions reported one each (3.3%). Chemical enquiries involved rodenticides in 3 enquiries (10%). Other chemicals included detergents, ink, ammonia, and thinners. The circumstances of poisoning were accidental in eighteen enquiries (60%), with medication errors reported in nine instances (30%). A serious incident identified by DPIC staff involved a child with known sickle cell disease receiving hydroxychloroquine for a year rather than hydroxyurea. Suicidal intent was reported in 2 enquiries (6.6%) and a tramadol overdose in a tramadol dependent patient was reported. Twenty-five patients (83.3%) were asymptomatic at the time of the enquiry. Seven patients (23.3%) were reported to have received a toxic dose; twenty-one patients (70%) received a non-toxic dose. In 2 cases involving artemether-lumefantrine (antimalarial) and zinc sulfate antidiarrheal suspension, an evidence-based reference toxic dose was not available to guide assessment. Eighteen enquiries (60%) came from the public; the rest from healthcare providers. Follow-up calls were conducted by the centre 48-72hrs after the initial enquiry. Sixteen patients (53.3%) recovered, 2 patients were deemed to be mild and not requiring follow-up, and twelve patients did not respond to the follow-up calls.

Discussion: The largest age group affected were unsurprisingly infants and toddlers with accidental poisoning being the main presentation. The commonest drugs involved were vitamin and mineral supplements. Most patients remained asymptomatic and had used non-toxic doses.

Conclusion: Consulting the DPIC also helped prevent unnecessary hospital attendances thereby presenting a cost saving benefit.

8

In Vivo Efficacy Of A Polyclonal Ovine Antibody Fab Fragment Against Ricin Toxicity

Hossam Embabi[1,2], Zainab Bascal[3], Aled Griffiths[4], Christon Hill[5]

[1]Serb Pharmaceuticals, Dubai, UAE. [2]Faculty of Pharmacy, Cairo University, Cairo, Egypt. [3]Protherics UK Ltd, UK, United Kingdom. [4]SERB Pharmaceuticals, Wales, United Kingdom. [5]BTG International Inc, USA, USA

Abstract

Background: Ricin is a toxin isolated from seeds of *Ricinus communis*. It has been considered a threat as a weapon due to its ease of manufacture and toxicity. There is no specific therapy for ricin intoxication. A polyclonal ovine antibody Fab (PR022) was developed as a potential antidote by immunizing sheep with a *R. communis*-derived protein. The objective is to establish if intravenous (IV) administration of PR022 is effective in a mouse ricin intraperitoneal (IP) model.

Methods: An LD_{50} ricin murine model was established following IP administration of ricin and confirmed in BALB/c mice. Based on the model, on Day 0 animals were administered increasing doses of the PR022 IV, 2hrs after ricin IP challenge of 6 LD_{50}. Animals were then observed for up to 14 days for survival, weighed daily and observed clinically twice daily.

Results: Ricin alone exposed mice died in <28hrs. PR022 improved survival and body weight in a dose-dependent manner. In addition, there was decreased incidence and severity of toxic signs in PR022 treated groups.

Conclusion: PR022 demonstrated in a dose-dependent manner improved survival rates and body weight following ricin challenge. PR022 has potential as a medical countermeasure to ricin toxicity.

9

Prospective Evaluation Of The Prediction Of Respiratory Failure In Pesticide Intoxication (PREP) Score In Predicting Respiratory Failure In Patients With Acute Pesticide Poisoning.

Tabiha Binte Hannan[1], Suvodip Shaw[2], Zaki Hassan[3], Abdullah Abu Sayeed[4], Abu Shahin Mohammed Mahbubur Rahman[5], Sujit Paul[6], Mohammad Mahfuzul Hoque[7], Mohammad Salim[8], Nishan Chakrabarty[9], Toma Mehedi[10], Md Al-Amin Khan[11], Shishir Ranjan Chakrabarty[12], Aniruddha Ghose[13], Md Shafiqul Bari[14], Michael Eddleston[15], M.A Faiz[16], Fazle Rabbi Chowdhury[1]

1. Department of Internal Medicine, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh
2. University of Edinburgh, UK

Background: Pesticide related toxicities are more common in developing countries across Asia and Africa, because of its easy availability, widespread use, and lack of knowledge among the offenders. The mortality and morbidity could be scaled down if at-risk patients of adverse prognosis could be identified early during toxicity. The aim of our study was to prospectively validate a newly developed scoring system 'Prediction of Respiratory Failure in Pesticide Intoxication (PREP)' score for predicting respiratory failure in acute pesticide poisoning patients. The PREP score comprises of five variables: age, pesticide category, amount of ingestion, GCS, and arterial pH.

Methods: In this prospective observational study, a total of 328 patients were enrolled from four tertiary hospitals of Bangladesh over the period of March 2023 to November 2023. Demographic and clinical data were obtained using a structured questionnaire. Arterial blood gas (ABG) analysis at 1-hour and 6-hour was performed and PREP scoring was done simultaneously at both times. The patients were then observed for development of respiratory failure. A three-month follow-up was scheduled for all patients to evaluate pesticide related mortality and morbidity.

Results: Among the enrolled 328 patients, there were 93 (28.4%) cases of pyrethroid poisoning, 82 (25%) cases of organophosphate (OP)-carbamate (CM) poisoning, 53 (16%) cases of mixed OP poisoning (combination products), and 100 (30.5%) cases of other poisoning. Median age of the enrolled patients was 25±15 years, with a male-female ratio of 2.2:1. The majority (229, 69.8%) of the pesticides reported belonged to WHO Class II moderately hazardous pesticides. Only 12 (3.7%) cases of WHO class Ia highly hazardous pesticides were observed, among which ten (83.3%) cases were of carbofuran poisoning, and two (16.7%) cases of abamectin poisoning. Cypermethrin (72, 22%) was the most frequently used chemical agent for suicidal cases, followed by rat killers (57, 17.4%), chlorpyrifos-cypermethrin combination (46, 14%), chlorpyrifos (41, 12.5%) and others. Only 23 (7.0%) patients developed respiratory failure in this cohort. The development of respiratory failure was most observed in paraquat poisoning cases (5, 38.5%). At 1-hour, the sensitivity, specificity, positive and negative predictive values of the PREP score were 78%, 59%, 13% and 97% with an area under receiver operating curve of 0.7674. At 6-hour, PREP score showed promising predictive ability with 93.3% sensitivity, 55% specificity, 12% positive predictive value, and 99% negative predictive values with an AUROC 0.7847. The mortality rate observed in this study was 3.7%. The overall mortality was highest among mixed OP cases (9.4%) compared to OP (2.4%) and others (4%).

Conclusion: Due to limited resources, and inadequate knowledge, mild cases are often referred to higher care centers increasing the overwhelming patient load and compromising the standard care. The promising negative predictive value and sensitivity at 6-hour, PREP scoring can be of help to limit the unnecessary referral of mild cases to the tertiary care centers as well as make the clinicians help to spot possible worse cases.

Poster Presentations

10

Root Cause Analysis In Toxicovigilance: Readapting A Generic Method To Toxicovigilance Cases - Pesticide As Example.

Aoued Leila [1] Chaoui Hanane[1], Rhalem Naima[1], Soulaymani-bencheikh Rachida[1,2]

(1) Poison Control Centre of Morocco.
(2) Faculty of Medicine and Pharmacy of Rabat Morocco

Introduction: Root Cause Analysis (RCA) is a methodical process aimed at discovering the root causes of problems to identify appropriate solutions. RCA assumes that it is much more effective to systematically prevent and solve for underlying issues rather than just treating ad hoc symptoms and putting out fires. RCA has historically been used in the health care setting to investigate the cause of medical errors. In toxicovigilance, RCA involves the assessment of the relationship between the exposure to a substance, the occurrence of symptoms and the evolution of cases of poisoning. The objective of this work is to present how we adapted the technique of fishbone diagram, also called Ishikawa diagram to analyze poisoning cases.

Methods: We used the standard fishbone diagram as a framework, a new RCA classification schema was constructed for poisoning cases. The new model served to encourage consideration of specific contributors to the occurrence of a case of poisoning including conditions linked to the toxic, to storage conditions and methods, related to awareness, to training of Health Professionals (HPs) and to the early treatment.

Results: We report the case of a 6-year-old child who accidentally ingested a pesticide (Cypermethrin mixed with an organophosphate) who presented 4 hours later: severe gastrointestinal upset, drowsiness, bronchial hypersecretion, tearing, hypersalivation, and shortness of breath**,** seizures. The evolution was marked by the onset of a coma and death which occurred 12 hours after ingestion. The use of Ishikawa diagram to analyze the root causes of occurrence of this poisoning case showed:

- Conditions linked to the toxic: the components of the product are very toxic and absence of product labeling due to transfer of two pesticides into a bottle of water.
- Conditions linked to storage conditions and methods: Pesticide left within reach of child and transferring two pesticides into a bottle of water.
- Conditions related to awareness: Family's ignorance about the toxicity of the products, first aid at home not adapted to pesticide poisoning.
- Conditions linked to training of HPs: insufficiency of HPs training in diagnosing and treating such cases of poisoning.
- Conditions linked to the early treatment: the treatment was not started early due the distance of the child's home from the nearest hospital, and the late diagnosis.

Conclusion: Modifying the fishbone diagram for analyzing poisoning cases turned out to be a practical tool for a more comprehensive approach to analyzing, teaching about the complexities of poisoning cases and preventing them.

11

Prevalence Of Anabolic Androgenic Steroids Use Among GYM Members In Muscat

Zaid Al Khabouri[1]*, Mohammed Al Wardi[2], Khalifa Al Quraini[1], Firas Al Majrafi[3], Ammar Al Gheithy[4], Mohammed Alharthi[3], Reem Al Affani[3], Yasser Al Khabori[5], Sachin Jose[6] and Suad Al Abri[7]

[1]Emergency Medicine Residency Training Program, Oman Medical Specialty Board, Muscat, Oman

[2]Otolaryngology Residency Training Program, Oman Medical Specialty Board, Muscat, Oman

[3]College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman

[4]Directorate General of Health Services, Ministry of Health, Muscat, Oman

[5]General Foundation Program, Oman Medical Specialty Board, Muscat, Oman

[6]Research and Studies Section, Oman Medical Specialty Board, Muscat, Oman

[7]Emergency Medicine Department, Sultan Qaboos University Hospital, Muscat, Oman

*Corresponding author: zaid.k19@resident.omsb.org

Abstract

Background: This study aimed to estimate the prevalence of anabolic androgenic steroids (AAS) use among non-professional gym members in Muscat and to explore the attitudes, knowledge, and practice associated with it and other performance-enhancing drugs (PEDs) including supplements and potential substances of abuse.

Methods: Cross-sectional, questionnaire-based study distributed randomly to gyms in Muscat and electronically through social media channels. We included all gym members and excluded professional athletes. Ethical approval was granted by the College of Medicine and Health Sciences at Sultan Qaboos University.

Results*:* The estimated prevalence of AAS use among gym members in Muscat is 17.3% (95% CI: 13.3–21.9). Gym members in Muscat had a good general understanding of AAS effects and adverse health effects. Among AAS users, 74.5% admitted using it while acknowledging the associated harm. Doping on AAS was associated with more frequent and prolonged use of gym facilities and peer influence of knowing other users and being offered to use. The most identified source of AAS was coaches. Access to AAS was perceived as easy by gym members in Muscat. There was no association between AAS use and other substances of abuse.

Conclusion: The prevalence of AAS use among gym members in Muscat is considered high and falls in a similar range as the reported prevalence in neighboring Gulf Cooperation Council countries. Further research is needed to explore the possibilities and prevalence of unintended doping. Our findings encourage more actions to regulate AAS use and avoid misuse.

12

Mercury Contamination In Skin Whitening Products Sold In Kuwait

Lulwah Alattal, Jenan Salmeen, Abdullatif Aloumi

Kuwait Poison Control Center, Kuwait City, Kuwait

Abstract

Background: Chronic Mercury exposure is associated with well documented adverse health effects including neurological dysfunction such as memory loss, muscle weakness, tremors, visual disturbances, peripheral neuropathy, and renal complications such as nephrotic syndrome. Despite the recognized harm associated with Mercury exposure and international restrictions on adulteration of cosmetic products such as skin whitening creams, this issue continues to occur. We suspect that Mercury is likely to be present in commercial skin whitening products sold in Kuwait and conducted this study to investigate and quantify Mercury adulteration in such products.

Methods: We tested our null hypothesis H_o that no samples of skin whitening products in Kuwait contain toxic or detectable quantities of mercury using a student's t-test. From randomly selected retailers across Kuwait City, including one online vendor, 16 cosmetic skin lightening cream samples were obtained for testing. The samples were selected based on popularity as per salespersons of each store. The selected products were manufactured in Kuwait, UAE, China, Pakistan, and Thailand. The samples were then sent to the Registration and Control Administration of Pharmaceuticals and Herbal Medicines at the Ministry of Health where they were tested for the presence of Mercury and quantified levels using the Inductively Coupled Plasma Mass Spectrometer (ICP-MS).

Results: Of the 16 samples tested, 5 samples (31.25%) contained detectable Mercury levels, one sample (6.25%) had a Mercury level above 1ppm (19.14ppm) manufactured in Pakistan, the other 4 positive samples had levels of 0.321ppm, 0.317ppm, 0.00025ppm, 0.0004ppm and were manufactured in Pakistan, Thailand, and China accordingly.

Discussion: The Minamata Convention, an international environmental agreement that addresses activities contributing to Mercury pollution, has established a limit of 1ppm of Mercury for skin lightening products. However, the most recent conference of parties in November 2023 discussed a ban on all Mercury added to cosmetics by 2025 instead of the previous 1ppm limit. This study's results highlight that despite global efforts to stop the use of Mercury in cosmetics, the issue is still prevalent in Kuwait and other countries with similar study results to ours.

Conclusion: In this sampling of skin whitening creams in Kuwait, Mercury was detected as an adulterant in 31.25 % of samples and is therefore considered toxic according to the most recent recommendations. Legislated, regulatory establishment of safe limits for Mercury and other metals or toxins may be a method to prevent exposures to these toxins within Kuwait.

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Sheep Meat Lead And Mercury Content In Kuwait Market

Ahmad Alshehab, Abdullatif Aloumi

KBEM, Kuwait, Kuwait

Abstract

Background: Chronic lead and mercury exposure can result in adverse health effects. A reported and known route of such exposure is via ingestion of contaminated food. According to the Food and Agriculture Organization of the United Nations, the daily per capita consumption of sheep meat in Kuwait is 0.038kg/day; 42% of sheep consumed in Kuwait is imported. Lead and mercury produced by industrial and agricultural processes can bioaccumulate in sheep via contaminated animal feed. With a high level of sheep meat consumption in Kuwait, heavy metal contamination is a critical public health issue. A maximum permissible limit (MPL) for meat heavy metal levels has been proposed by the U.S Department of Agriculture. In this study, we seek to evaluate samples of sheep meat in Kuwait to determine if they contain lead and mercury levels above the MPL.

Methods: Using sheep from a local butcher shop in Kuwait City, 11 samples including 10 meat samples, two from each available country of origin (Kuwait, Syria, Iran, Australia, Somalia), and one sheep liver originating from Kuwait were collected. The imported sheep were raised in Kuwait for 1-2 weeks then slaughtered and kept refrigerated. Induced coupled plasma mass spectroscopy (ICP-MS) was used to quantify the trace amounts of heavy metals in the samples. Our null hypothesis was that the meat and liver samples contain lead and mercury levels above the MPL, evaluated by Chi-square test.

Results: In each of the 11 samples tested, both lead and mercury were undetectable (<0.001mg/kg).

Discussion: In 2020, a report describing contamination of sheep meat raised and slaughtered in Kuwait was published. That report of sheep imported from Australia and raised in Kuwait had a mean lead and mercury levels of 0.482 mg/kg and 0.320 mg/kg respectively; the USDA MPL for lead and mercury is 0.1mg/kg and 0.05mg/kg respectively. Our tested samples found no detectable quantity of lead or mercury. Numerous potential factors may contribute to detectable or toxic levels of heavy metals in sheep meat. Lead and mercury-free animal feeds and lack of other environmental exposures to these metals may contribute to sheep meat with undetectable levels of lead and mercury in comparison to past research.

Conclusion: Sheep meat samples we tested contained no detectable lead or mercury. Ongoing monitoring may provide insight as to the safety of sheep meat and other foods, including specific factors that may be associated with bioaccumulation of heavy metals in sheep meat.

14

A Case Report Of Mercury Intoxication

Jamal Al Habsi[1], Tasneem Al Shizawi[1], Abdul Aziz Al Bahri[2]

[1]Department of Forensic Medicine, Royal Oman Police Hospital, Muscat, Oman. [2]Forensic science laboratory, Muscat, Oman

Abstract

Background: Mercury is a heavy metal with known toxicity. The World Health Organization indicates mercury as one of the ten most problematic chemicals for public health. In many civilizations mercury was, and still, used to chase away evil spirits. When mercury intoxication does occur, diagnosis can be challenging because of its rarity and nonspecific presenting signs and symptoms. This report presents a fatal intoxication case with mercury.

Case report: A 3-year-old boy, was first admitted for the management of a second degree. Two days after admission the family stopped the management and left the hospital against medical advice. 11 days after discharge, the mother found that her son was unresponsive. He was dead before arrival to hospital. On further investigation, the mother confess that she gave him a local dessert, containing mercury. In addition to placing a mercury bracelet on his left wrist. According to her, it was believed the child's condition was due to evil spirits, and that the mercury will help in removing it. An autopsy was performed. On external examination, there was generalized burns at different stages of healing. Superficial burn on the left wrist more consistent to be a chemical burn from the mercury bracelet. Full body X-ray revealed dense concentration of mercury in his gastrointestinal tract. On opening the skull, the brain showed edema and vascular congestion, no evidence of skull fractures, or any intracranial and extracranial hemorrhages. Internal examination of neck, chest and abdomen confirmed multiple hemorrhagic erosions along the gastrointestinal tract starting from tongue and gum along esophagus and down to small and large intestine. There were multiple mercury small balls were found in the stomach and small intestine. Samples tested in the histopathology lab showed hemolysis in all studied organs and tissues. Toxicological analysis shows that the concentration of mercury found in blood was 13,489 mg/L. This value is much higher than those published in the literature, and it far exceed the limits considered as normal.

Discussion: Mercury is the only metal that is liquid at room temperature. The toxic manifestation and clinical presentation of mercury varies depending on the chemical form, nature of exposure, and the intensity of exposure. Cases of mercury poisoning are more and more uncommon. Several warnings and numerous interventions generated by WHO in recent years limited the exposure to mercury, which decreased the rate of these fatalities, especially in industrialized countries. In this case, the extensive erosions caused by the mercury lead to massive bleeding and as such hemorrhagic shock which sadly ended up with death.

Conclusion: This case is a rare situation of acute intoxication by ingestion of mercury. The autopsy findings resemble the descriptions published in the literature. Although a rare occurrence, this help in understanding the crucial need for raising awareness about the dangerous handling of mercury especially in areas where such spiritual use of mercury still present.

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Tetrodotoxin And Saxitoxin Poisoning In The Philippines: A Case Report

Fatima Ayessah Ingkagan, Denise Ann Caballes

University of the Philippines - Philippine General Hospital, Manila, Philippines

Abstract

Background: Pufferfish, a globally distributed marine species prevalent in tropical and sub-tropical waters, holds cultural significance as a delicacy in Asian cuisine despite its reputation for lethality. While local news reports incidents of pufferfish poisoning and fatalities, no official cases have been documented in the Philippines. This case underscores the potential dangers associated with pufferfish consumption and emphasizes the need for public awareness and official reporting mechanisms.

Case report: A 53-year-old male who consumed boiled pufferfish roe was brought to a local hospital in Manila with a chief complaint of decreased sensorium. The patient exhibited symptoms ranging from vomiting and dyspnea to dizziness, numbness, and generalized weakness as early as 15 minutes post-ingestion. Rapidly deteriorating, the patient was found to have acute respiratory failure and shock; hence, resuscitation and stabilization were done. The case was then referred to the National Poison Management and Control Center. The Bureau of Fisheries and Aquatic Resources performed toxicology testing, which revealed elevated levels of tetrodotoxin and saxitoxin. A single dose of activated charcoal was immediately administered, and supportive management was provided. The symptoms were then resolved after 12 hours; however, the patient had hospital-acquired pneumonia and eventually succumbed.

Discussion: Tetrodotoxin is a water-soluble and heat-stable marine toxin that is one of the deadliest toxins known and about 1000 times more toxic than cyanide, with a mortality rate as high as 30%. It is commonly found in pufferfish, and in most of the species, the liver, ovary, and skin have the highest tetrodotoxin concentrations. On the other hand, saxitoxin, known as paralytic shellfish poison, is also a potent neurotoxin that is implicated through the consumption of bivalves. These marine toxins exert their effects by binding to voltage-gated sodium channels, impeding the sodium ion flow that is critical for action potential generation. The interruption in nerve transmissions may lead to as mild as gastrointestinal upset and numbness to as severe as hypotension, paralysis, respiratory failure, and death.

Conclusion: Pufferfish poisoning is a life-threatening condition. Airway protection through mechanical ventilation, prompt administration of activated charcoal, and comprehensive supportive care are crucial and emergent interventions. To this date, there is no antidote for tetrodotoxin or saxitoxin poisoning. With the growing incidence of fatalities, these marine toxins continue to be a global health concern. Strengthening community awareness, advocacy efforts, and enhancing preventive strategies, especially through the initiatives of poison centers, are imperative in minimizing its incidence and improving clinical outcomes.

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A Poison Center Input Towards The Availability Of Eye Irrigation Tools For Chemical Eye Injuries In Kuwait Emergency Departments

Jnan Alqattan, Sundus Altawheed, Abdullatif Aloumi

KIMS, Bayan, Kuwait

Abstract

Background: Chemical eye injuries are a true ocular emergency that require immediate intervention. Eye injuries can be due to solid, liquid, powder or aerosol chemicals that are household or industrial. Without early treatment, caustic exposures can cause severe injury and permanent visual impairment and disfiguration. Emergency department (ED) readiness to manage ocular chemical exposures is of public health importance.

Methods: This is a descriptive quality improvement study conducted by our poison control center focused on ED preparedness for management of ocular chemical exposures. Data was collected from 6 tertiary hospital EDs in Kuwait regarding the availability of tools and resources used in the management of patients with chemical ocular exposures, including: Morgan lens, pH strip, slit lamp or blue light, topical ocular anesthesia, and fluorescein dye. After reviewing the initial results, an intervention was made in the form of creating a chemical eye injury kit containing each component tool/resources with instructions for use, and a hands-on training session on proper use. A repeat assessment of the availability of the tools was then made one month after the intervention.

Results: Out of the 6 EDs surveyed, 0% (0/6) had Morgan lens, 66.6% (4/6) had pH strips, 100% (6/6) had a slit lamp or blue light, 66.6% (4/6) had topical ocular anesthesia, and 66.6% (4/6) had fluorescein dye. The post intervention assessment demonstrated 100% (6/6) EDs had each tool or resource, including Morgan lens, pH strip, slit lamp or blue light, topical ocular anesthesia, and fluorescein dye.

Discussion: Chemical eye injuries can be devastating and potentially lead to permanent visual impairment. All EDs need to be prepared for such injuries as irrigation of the eye is a time sensitive process. Poison control centers can play a key role to identify gaps in ED preparedness for chemical ocular exposures.

Conclusion: This simple poison control center outreach project improved national ED preparedness for ocular chemical exposures. Such input towards improving resource access and training and be best prepared to manage poisoned patients is an essential role of poison centers in the healthcare system.

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Levels Of Methyl Mercury (Mehg) In Kuwaiti Local Fish And Shellfish

Sara AlQabandy[1], Mohammad AlMukaimi[2], Fajer AlEnezi[2], Abdullatif AlOumi[1]

[1]KPCC, Kuwait, Kuwait. [2]Kuwait University, Kuwait, Kuwait

Abstract

Background: In Kuwait, seafood is a popular local cuisine with a vast array of essential nutrients. Seafood may pose health risks when contaminated with methyl mercury (MeHg). MeHg can cross the blood-brain barrier and affect the central nervous system, causing neurological injury including impaired cognitive, visual, and motor function. MeHg exposure is associated with adverse cardiovascular effects including hypertension and increased risk of myocardial infarctions. Health risks are more likely to occur in vulnerable populations such as pregnant and nursing women, the developing fetus, and children. This study aims to evaluate the local Kuwaiti seafood and shellfish for MeHg to assess the safety of its consumption with regards to type and amount of seafood.

Methods: From the fresh fish market in Kuwait City, 9 species of fish and shellfish were collected from 8 different vendors; Subaity (Sparidentex hasta), Hamoor/Balool (Epinephelus coioides), Maid (Liza Klunzingeri), Hasoom (Sillanginidae), Shrimp (Penaeus semisulcatus), Crab (Portunus pelagicus), Newaiby (Otolithes rubber), Sheari (Lethrinus Lentjan). For each species, 2 samples were collected giving a total of 18 tissue samples. Muscle tissue was excised from each sample using a stainless-steel scalpel and placed in a metal-free labeled vial. The samples were then freeze dried and assayed for MeHg using the preparation and direct analysis method AOAC Method 930.15 in a Freeze Dry (Labconco) Model/Catalog #7755513 (Freezone 18) machine, where the samples were dried in a frozen state under high vacuum for preservation. Our null hypothesis is that fish and shellfish in Kuwait do not have mercury content above recommended USDA safe levels.

Results: The highest mean concentration (mg/kg) was seen in the species Sparidentex Hasta (1.64), followed by Epinephelus coioides (1.27), Otolithes rubber (1.05), Penaeus semisulcatus (0.62), Lethrinus Lentjan (0.59), Portunus Pelagicus (0.538), Epinephelus coioides (0.32), Sillanginidae (0.24) and Liza Klunzingeri (0.11).

Discussion: The US FDA recommended mercury level in fish for 1 serving is ≤0.23-0.46 (mg/kg), 2 servings ≤0.15-0.2, and for 3 servings ≤ 0.15. Our results showed that the total level of mercury concentration in 55.5% (10/18) of the species tested appeared to be above these recommended safe levels. Compared to previous studies from Kuwait, there is upward trend in mercury content. In 2017 Baird et al, showed that the Portunus pelagicus had a total mercury level of 0.14mg/kg, our results were nearly triple of that value.

Conclusion: In this study, of the total samples tested, 57% of local fish and 50% shellfish were above the recommended FDA single serving mercury level (≤0.23-0.46 mg/kg). This is an upward trend relative to past studies. Chronic ingestion of mercury can lead to multiple health risks including neurological, renal, cardiovascular, and gastrointestinal complications. The source of contamination of fish with mercury can be due to water pollution from industrial emissions involving the oil industry and coal-fueled power plants among other sources. Waste treatment can also be implemented in the industrial sector to limit mercury contamination of sea water.

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Adherence To Poison Center Recommendations For Hyperbaric Oxygen Therapy: A Retrospective Analysis For Barriers In Kuwait

Rawan Hanoush, Fahad Jaber, Abdullatif Aloumi

Kuwait Poison Control Center, Kuwait City, Kuwait

Abstract

Background: Hyperbaric oxygen therapy (HBOT) can be used in the treatment of carbon monoxide (CO) poisoning. HBOT may reduce the incidence of delayed neurologic sequelae (DNS), which occurs in up to 40% of patients with CO poisoning. HBOT can accelerate CO elimination, displace CO from myoglobin and cytochrome oxidase, and decrease lipid peroxidation, which believed to be the likely cause of DNS. Varied protocols and guidelines for HBOT of CO poisoning exist, with the most used indications being syncope, coma, seizure, altered mental status, GCS <15, COHb >25%, COHb ≥ 15% in pregnancy, fetal distress in pregnancy, abnormal cerebellar function, equivocal cases with age >35 years, and prolonged exposure (≥24 h). Limitations to the use of HBOT can be in the form of availability of the treatment, logistical challenges, and patient-related factors.

In this study, we aim to assess the adherence to HBOT recommendations made by a national poison control center (PCC), and to identify reasons for non-compliance.

Methods: This is a descriptive retrospective analysis of CO poisoning cases reported to our PCC from October 2022 to October 2023. The inclusion criteria were CO exposure for which HBOT was recommended but not performed. An analysis of each case was then done to identify the reason for non-compliance.

Results: We identified 69 cases of CO exposure for which HBOT was recommended by our PCC, 40.5% (28/69) did not undergo HBOT. Of the 28 patients: 53.5% (n=15/28) of the patients refused treatment; 25% (n=7/28) were endotracheal intubated and mechanically ventilated, and the ventilator incompatible with use the HBOT chamber; in17.8% (n=5/28) of cases, HBOT staff were unavailable; and 3.5% (n=1/28) had an unknown reason for failure to undergo HBOT.

Discussion: We found multiple reasons for nonadherence to the HBOT treatment recommendations made by our PCC. Mechanical ventilators incompatible with use in our HBOT chamber and staff availability appear to be barriers to HBOT that might be easily remedied. Patient refusal of HBOT may be associated with lack of patient education and understanding of HBOT benefits, and particularly lack of awareness of DNS and potential for permanent neurologic disability. There is reasonable evidence that HBOT may reduce the incidence of DNS in patients with severe CO poisoning, and we consider use of HBOT within the standard of care of medical toxicology in Kuwait. HBOT effectiveness appears to be maximal when the first HBOT is done within 6 hours of exposure, with decreasing benefit up to 24 hours after exposure, and unlikely benefit when the initial HBOT is performed beyond 24 hours of exposure. In settings where HBOT is used for CO poisoning, efforts to provide HBOT in a timely manner should be made.

Conclusion: In this study 40.5% of patients did not receive HBOT when recommended by our PCC. The main reasons identified included patient refusal, ventilators being incompatible with the HBOT chamber, and unavailability of HBOT staff. Remedies to these issues will be sought to optimize availability and use of HBOT for CO-poisoned patients in Kuwait.

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Investigating An Unintentional Illicit Drug Exposure In A Pediatric Case

Rawan Aalhanoush[1], Jenan Salmeen[1], Khalid Saed[2], Abdullatif Aloumi[1]

[1]Kuwait poison control center, Kuwait City, Kuwait. [2]addiction lab, Kuwait City, Kuwait

Abstract

Background: Inadvertent exposure to harmful illicit substances in vulnerable pediatric populations can lead to adverse effects. This case report outlines the presentation, clinical course, and management of a 14-year-old female, who was exposed to an illicit substance and underwent a series of symptoms.

Case Report: A 14-year-old female patient known to have sickle cell anemia and epilepsy; presented with severe headache, palpitation, and fever. Her temperature was 38.8 oC, heart rate 170 BPM with an ECG showing supraventricular tachycardia, and a potassium of 2.8. She was managed with adenosine in the ED reverting her to a sinus rhythm and the hypokalemia was corrected. She was admitted to the ICU and treated for sepsis with empirical antibiotics. She improved the next day and later the septic workup came back negative. A suspicion of a toxicological exposure was raised due to inconsistent history and reactions from the parents, a toxicology screen was performed.

The results using UHPLC-QTOF-MS/MS showed 3 substances that were not reported from the history at home or were administered at the hospital: Cotinine, Aminorex Isomer, and Desmethoxyyangonin. The child denied smoking and illicit drug use, her older sister confirmed this history and included the possibility that one of the parents abuses drugs. The patient was discharged after 7 days with full recovery and input from the Suspected Child Abuse and Neglect (SCAN) team.

Discussion: Cotinine, an alkaloid metabolite of nicotine results from tobacco exposure. Nicotine toxicity can present with vomiting, dizziness, agitation, seizures, muscle weakness, tachycardia and hypertension followed by bradycardia and hypotension. Aminorex Isomer, exerts amphetamine-like action, has a stimulant and psychoactive effect, can be found in designer drugs. It was used as a nasal decongestant, anorectic drug, and found in cocaine that is adulterated with levamisole. Potentially its exposure can lead to a sympathomimetic toxidrome with tachycardia and fever. Desmethoxyyangonin found in piper methysticum (Kava) is abused due to its GABA effect. It can lead to drowsiness/sedation, ataxia, skin rash, and hepatitis. Similar results of the combination of such substances have been seen in Tumbak/Pan users.

Conclusion: We report a pediatric case presenting with symptoms and signs of suspected sepsis and was treated accordingly. All septic work-up were negative, and due a suspicious history, toxicology testing was performed. It was positive for Cotinine, Aminorex Isomer, and Desmethoxyyangonin. Clinically, the possibility that her presentation was due to an indirect exposure of the xenobiotics listed existed as her clinical course seems to be in keeping with a toxicological exposure more than sepsis. A broad differential diagnosis that includes toxicology should be explored when managing the vulnerable pediatric population.

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Intentional Sodium Oxybate Overdose Resulting In Acute Respiratory Failure

Kieran Kristensen[1], David Kuai[1], Al Yaqdhan Al Atbi[1], Ziad Kazzi[2], Michael Beuhler[3]

[1]Emory University School of Medicine, Atlanta, USA. [2]Georgia Poison Center, Atlanta, USA. [3]North Carolina Poison Control, North Carolina, USA

Abstract

Background: Sodium oxybate is used to treat narcolepsy with cataplexy, however, its dosing instructions are complicated and may be prone to user error. More rarely it has been used recreationally, occasionally with other substances. This has led to cases of misuse of the medication resulting in hospitalization for symptoms such as central nervous system depression, bradycardia, respiratory depression, seizure, confusion, delirium, and vomiting. We report an overdose of 94.5g with intent of suicide, higher than any prior reported ingestion. Suicide attempts are notably rare with sodium oxybate, with only 8 reported cases globally as of a 2009 safety overview of the medication.

Case report: A 53-year-old man with a history of narcolepsy, obstructive sleep apnea, atrial fibrillation, depression, hypertension, and prior stroke, presented to an emergency department (ED) by EMS after ingesting his own medication Xywav(R) [Sodium Oxybate] in a suicide attempt. He initially left without being seen, but was brought back by EMS 2 hours later, responsive only to noxious stimuli requiring endotracheal intubation for airway protection with succinylcholine and etomidate. His vital signs were notable for bradycardia with HR 45. He was otherwise normotensive and normothermic with a respiratory rate of 16 on the ventilator. The patient received propofol for sedation and one dose of activated charcoal as well as 2L normal saline. His workup was notable for an INR of 2.3 (on chronic warfarin) and undetectable serum levels of ethanol, salicylate, and acetaminophen. ECG showed sinus bradycardia. The patient was admitted to the ICU for monitoring and began to respond to commands roughly 5 hours after intubation. He was extubated later that day after an uncomplicated stay in the ICU and admitted to psychiatry.

Discussion: Sodium oxybate may be unfamiliar to most emergency providers, and many other case reports of toxicity involve coingestions and/or uncertain timing of ingestion. This case of single substance sodium oxybate toxicity with known ingestion time, however, provides a straightforward example of its toxidrome. Given the range of depressant effects the medication can have on the central nervous, cardiovascular, and respiratory systems, its clinical presentation in an undifferentiated patient presents a diagnostic challenge. While it should not necessarily be high on the differential in an altered or comatose patient, it is helpful to understand its presentation and relatively brief clinical course when history suggests it could be involved. In one study, among cases in which oxybate toxicity was believed to be the suspected etiology, 22% required use of emergency services and 27% resulted in hospitalizations. For this reason, it is crucial to recognize the symptoms and obtain a thorough history from friends, family members, or emergency medical personnel when possible. Furthermore, prescribers should be cautious in patients with known history of suicidal ideation or attempts.

Conclusion: It is crucial to consider oxybate toxicity in patients with a known history of narcolepsy who present with altered mental status, respiratory depression, or other symptoms not clearly explained by another etiology.

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Massive Dermal Barium Sulfide Exposure Leading To Cardiac Arrest: A Case Report.

Kieran Kristensen[1], David Kuai[1,2], Al Yaqdhan Al Atbi[3,4], Ziad Kazzi[1,2], Emily Kiernan[1,2]

[1]Emory University School of Medicine, Atlanta, USA. [2]Georgia Poison Center, Atlanta, USA. [3]Emory University School of Medicine, Atlanta, USA. [4]Royal Oman Police Hospital, Muscat, Oman

Abstract

Background: Barium poisoning is uncommon, and most exposures occur via ingestion. We present a case of a massive dermal exposure to barium sulfide with a clinically significant toxicity. To our knowledge, there is only one prior report in the literature of dermal exposure to barium chloride causing systemic barium toxicity.

Methods: This is a single patient case report of a 52-year-old male who worked at a chemical manufacturing company. A kiln containing superheated barium sulfide and water erupted, covering the patient, who was only wearing a helmet. He suffered diffuse partial- and full-thickness burns. Shortly after, he collapsed and was found pulseless by EMS. Return of spontaneous circulation was achieved after one round of chest compressions and the patient was brought to the Emergency Department (ED).

Results: In the ED, the patient had >95% total body surface area burns, potassium 1.8 mEq/L, wide-complex tachycardia, and an anion gap metabolic acidosis with a serum pH 6.73 and anion gap of 33. Diffuse thermal burns allowed for increased barium absorption and clinically significant barium toxicity. This was complicated by secondary hydrogen sulfide production, leading to suspected mitochondrial poisoning, exacerbating the initial cardiac dysfunction and anion gap metabolic acidosis. Chest X-Ray showed bilateral diffuse airspace opacities. The patient became profoundly hypotensive and large volume intravenous fluids were administered as he was taken to decontamination. While awaiting decontamination, he had another cardiac arrest and died from significant thermal and chemical burns despite aggressive resuscitation and potassium repletion.

Conclusion: This case represents a unique, massive dermal barium sulfide exposure. The clinical syndrome demonstrates extreme barium toxicity from rapid systemic absorption through burned skin, hypokalemia, and mitochondrial dysfunction.

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Water Bead Expansion In Different Media

Banan Alsaleh[1], Hala Berr[1], Abdullatif Aloumi[2]

[1]KPCC, Kuwait City, Kuwait. [2]Kuwait Poison Control Center, Kuwait, Kuwait

Abstract

Background: Water beads (WB) or super absorbent polymer are used as decorative items, in floral arrangements, and toys for children. They are hygroscopic and thus expand in water. This property can present as a unique challenge when WB are ingested by a child or placed in an orifice such as the nostril or ear. Multiple case reports demonstrated WB ingestion resulting in serious surgical complications including intestinal obstruction and even death. These extremely rare but grave consequences have led to a common management trend of removal by endoscopy or a prolonged hospital observation for patients with water bead ingestion. We aim from this study to examine the available WBs in local Kuwaiti stores regarding their expansion in different media.

Method: From randomly selected retail stores across Kuwait, 16 different spherical shaped WB were collected, with a baseline diameter of 4.1mm (range 1.79mm-9.48mm). Using highly accurate digital calipers, samples of each bead were placed in one of three different liquid media, tap water, artificial gastric juice (AGJ), and olive oil mixed with AGJ. The AGJ (water 99.18%, pepsin 0.5%, hydrogen chloride 0.22%, thymol 0.1%) had a pH of 2.0 +/- 0.02. The 48 total WB were measured serially. Hourly measurements were done in the first 12 hours, then 12 hourly for 7 days. We tested our null hypothesis H_o that no WB will expand beyond 20mm, which correlates to a 500% increase in diameter, in any of the 3 media.

Results: Of the tap water immersed WB, none measured> 20mm in the first hour, 6.25% (1/16) at hour 2, 12.5% (2/16) at hour 5, 18.75% (3/16) at hour 12, 25% (4/16) at hour 48, and no other WB in water expanded >20mm till day 7. In olive oil and AGJ mixture, 6.25% (1/16) at hour 24 expanded >20mm. None (0/16) of the samples in the AGJ expanded >20mm. We noted that three of the five samples that expanded to >20 mm were from the same brand. And that there was no correlation between the initial size of the WB and the expansion.

Discussion: The smallest size of WB reported to cause a surgical complication was 20mm in a 19-month-old child. Our results demonstrated that WB expansion is affected by the media, with greatest expansion in water. WB in AGJ did not show significant expansion in our samples. The 2 largest WB reached 47mm on day 3 and another 30.51mm on day 6 both fragmented easily during the measurements on the reported days.

Conclusion: In our sample, 10.4% of all WB expanded beyond >20mm. WB expansion in AGJ is not significant compared to water. Use of liquid such as olive oil could potentially be a method of preventing expansion of WB. A database of available WB brands in a national poison center can help in the disposition of exposed patients.

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Elevated INR In Unfractionated Heparin Overdose

Fatma AL Balushi[1], Dimitri Malychef[2], Ziad Kazzi[1], Tharwat El Zahran[2]

[1]1- Emory University School of Medicine, Department of Emergency Medicine, Division of Medical Toxicology, Atlanta, Georgia, United States 2- Georgia Poison Center, Atlanta, Georgia, United States, Atlanta, USA. [2]American University of Beirut Medical Center, Lebanon, Beirut, Lebanon

Abstract

Background: Unfractionated heparin (UFH) binds to antithrombin III (AT-III), augmenting its inhibitory effect on various coagulation factors, particularly factor Xa and factor IIa (thrombin). While UFH's influence on the activated partial thromboplastin time (APTT) is well-established, there is limited literature addressing its impact on prothrombin time (PT) and subsequent International Normalized Ratio (INR). However, in the context of heparin therapy, particularly in overdose scenarios, INR may exhibit a paradoxical elevation. Falsely elevated INR poses a diagnostic challenge, potentially leading to mismanagement decisions. This case report details an incident of UFH overdose resulting in a significant elevation in INR, underscoring the necessity for a comprehensive understanding of UFH's effects on diverse coagulation parameters and highlights the importance of a nuanced approach to the interpretation of INR values in the context of heparin therapy.

Case Report: 39-year-old female with a history of breast cancer undergoing active chemotherapy presented to the emergency department with complaints of chest pain and shortness of breath. The diagnosis revealed multiple segmental and subsegmental pulmonary embolisms. A planned bolus of 4000 IU of unfractionated heparin over 30 minutes was intended; however, due to a calculation error, she received 29000 IU over 3 hours. Laboratory results indicated an elevated activated partial thromboplastin time (APTT) of up to 180 and an International Normalized Ratio (INR) of 7. Despite experiencing mild chest pain and developing bruises over the chest, an echocardiogram demonstrated normal findings, and there were no changes in the electrocardiogram (ECG). Troponin levels remained within the normal range. Over the following 3 hours, the patient's laboratory values gradually normalized, with the APTT decreasing from 180 to 130 and then further to 32. Similarly, the INR initially increased to 7, but it gradually improved to 1.6 and then further to 1.1. It is noteworthy that the patient was not on any medications during this period and her initial INR and APTT levels were within the normal range upon presentation.

Conclusion: This case report underscores the infrequently reported consequence of UFH overdose, resulting in a notably elevated INR. The mystery of falsely elevated INR in heparin overdose is vital for healthcare providers navigating the intricate landscape of anticoagulation management. Further research is essential to elucidate UFH's intricate interactions with PT and INR, contributing to a more thorough understanding of its anticoagulant effects and informing optimal patient management.

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Chlorine Gas Toxicity After Accidental Exposure In Sohar

Fatma AL Balushi[1], Hassan AL Balushi[2], Ahmed AL Saidi[2], Ahmed AL Abri[2], Suad Alsulaimani[3], Ziad Kazzi[1], Badria Al-Hattali[4]

[1]1- Emory University School of Medicine, Department of Emergency Medicine, Division of Medical Toxicology, Atlanta, Georgia, United States 2- Georgia Poison Center, Atlanta, Georgia, United States, Atlanta, USA. [2]4- Sohar Hospital, Sohar, Sultanate of Oman, Sohar, Oman. [3]Armed Forced Hospital, Muscat, Oman. [4]6- Poison control section, Department of Environmental and Occupational Health, Ministry of Health, Muscat, Sultanate of Oman, Muscat, Oman

Abstract

Abstract: Chlorine gas is widely used in industrial processes, and accidental releases can lead to harmful exposures with potentially severe health consequences. This case report presents the clinical course and management of individuals exposed to chlorine gas following a leakage from an industrial area.

Case Report: Forty-Two male individuals were exposed to chlorine gas, with 23 arriving at the Emergency Department (ED). The victims presented with a spectrum of respiratory and ophthalmologic symptoms, such as shortness of breath, cough, low oxygen saturation, wheezing, rhinorrhea, sore throat, itching, redness, and tearing. Additionally, non-specific symptoms such as chest pain, palpitations, diaphoresis, headache, nausea, and vomiting were reported. Triage and decontamination measures were promptly initiated at (ED), with victims categorized based on symptom severity. Oxygen supplementation was provided to all victims, with nebulized bronchodilators (salbutamol) and intravenous hydrocortisone (200 mg) administered to those with low oxygen saturation and wheezing. Despite the absence of intubation or non-invasive ventilation support, one patient with a history of bronchial asthma required ICU admission for 24 hours. Most victims exhibited normal venous blood gas levels, with a few showing respiratory alkalosis, likely secondary to CO2 washout. Chest X-rays performed on victims with respiratory symptoms were unremarkable. Twelve patients admitted to the regular ward were observed and discharged within a day, while one patient admitted to the ICU were discharged after 2 days. Follow-up examinations after 48 hours and 1 month revealed persistent complaints of chest pain, cough, and sore throat among the victims, emphasizing the prolonged effects of chlorine gas exposure.

Conclusion: This case report highlights the clinical manifestations, management strategies, and outcomes of individuals exposed to chlorine gas following an industrial leakage. The findings underscore the importance of prompt triage, appropriate medical interventions, and thorough follow-up in mitigating the impact of chlorine gas toxicity on affected individuals.

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Rare Manifestation Of Hemotoxic Snake Envenomation In A Child: A Case Report From A Rural Hospital In Oman

Dr. Manar Al Shahi[1], Dr. Badria Al Hathali[2,3], Dr. Hassan Al Balushi[4]

[1]Emergency Medicine Program at Oman Medical Specialty Board, Muscat, Oman. [2]Emergency Medicine and Toxicology Consultant at Ministry of Health, Muscat, Oman. [3]Head of Poison Control Section, Muscat, Oman. [4]Emergency Medicine and Toxicology Acting Consultant at Ministry of Health, Sohar, Oman

Abstract

Background: Snake envenomation can lead to significant morbidity and mortality causing hematological, renal, and neurological complications. Hemotoxic envenomation activates a hemorrhagic cascade leading to severe manifestation (2) Hemolacria, sub-conjunctival hemorrhage and ecchymosis, is a rare ophthalmological manifestation of hemotoxic snake envenomation that have not been previously reported in Oman**.**

Case Report: We describe a case of an 8-year-old child who was brought to a Pediatric Emergency Department (PED) after a snakebite in a farm three hours later with local swelling at the right foot. His initial vital were heart rate of 127 beat per minutes, a blood pressure of 128/75 mmHg, and oxygen saturation of 99% in room air. Shortly after presentation, he had one episode of hematemesis, followed by tearing blood from both eyes, along with petechial rash all over the body. Oozing from the cannula and the bite site was noticed (Image. 1). Patient developed gross hematuria. His initial coagulation profile reported to be very high with no specific numbers mentioned. He was started on 50 ml of intravenous Saudi polyvalent anti snake venom over 30 minutes infusion in line with national management guidelines along with intravenous vitamin K, Fresh Frozen Plasma, and ceftriaxone 1 gram. Another 100 ml of anti-snake venom followed as infusion over 30 minutes. Child had episode of hemoptysis requiring early intubation for airway protection. His hemoglobin dropped from 11 to 8 g/dL and platelets were 12.9 10^3/uL. Other laboratory investigations were within normal. He received a total of 250 ml of anti-snake venom as per the poison control center advice, in addition to PRBCS, cryoprecipitate and Fresh Frozen plasma. The child extubated the next day, with normal vital signs without inotropic support, and a normal neurological examination. His repeated serial coagulation normalized over two days. On day 5 of admission, patient's general condition improved, apart from signs of subconjunctival hemorrhage, mild limb ecchymosis with minimal petechial rash (picture2). He was discharged on day 7 on oral amoxiclav and follow up one week later. During the follow up, the ecchymosis, subconjunctival hemorrhage and petechial rash were improved. (picture 3)

Discussion: There are around 22 snake species in Oman, about 9 of which are venomous. The most common snakes are the vipers, which are hemotoxic, and most bites are caused by the saw-scaled viper, *Echis omanensis* as was identified in our case. (picture4) Coagulopathy, thrombocytopenia, local bleeding, and hematuria are commonly reported features post hemotoxic snake bite in our country. Haemolacria (tearing blood), subconjunctival hemorrhage and ecchymosis are rare complications that were not previously reported in Oman.

Conclusion: Tearing blood, subconjunctival hemorrhage, hemoptysis, and hematuria are signs of severe hemotoxic envenomation which needs urgent emergency and critical care intervention to avoid serious complications.

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Lead Contamination Of Different Water Sources In Kuwait

Sundus Altawheed[1], Abdullah Al yateem[2], Abdullatif Aloumi[1]

[1]Kuwait Poison Control Center (KPCC), Kuwait, Kuwait. [2]Kuwait Environment Public Authority (EPA), Kuwait, Kuwait

Abstract

Background: Environmental lead (Pb) exposure is an international public concern due to its health effects, particularly the neurocognitive development of children. Lead-contaminated water is an important route of exposure. Past research in Kuwait, some of which have conflicting results, suggest that Kuwait has some water sources with Pb contamination exceeding recommended safe values. In this study, we tested water samples from different sites in Kuwait for their lead content.

Methods: Eight samples from different water sources around Kuwait were collected; tap water from residential areas, irrigation water, seawater, and ground/well water. The samples were analyzed using Inductively Coupled Plasma (ICP) Spectroscopy (EPA method 200.7). We tested our null hypothesis Ho that all water sources in Kuwait did not exceed the Kuwait Environmental Protection Agency (EPA) recommended lead levels for drinking water.

Results: Of the samples analyzed, seawater contained 0.018 mg/L Pb; whereas 3 domestic tap water samples had Pb levels of 0.033 mg/L, 0.023 mg/L, and 0.017 mg/L; tap water from an agricultural area had 0.013 mg/L Pb; and irrigation water contained 0.036 mg/L. Additionally, one ground/well water sample had 0.036 mg/L of Pb and the other had undetectable levels.

Discussion: The Kuwait EPA sets 0.01 mg/L as the maximum Pb value in drinking water, 0.012 mg/L for seawater, and 0.5 mg/L for ground and irrigation water. Our results show that 62.5% (5/8) of the samples analyzed exceeded the recommended lead level. Previous data from Kuwait showed high Pb levels in water coolers and household desalinated drinking water. As lead bioaccumulates in the human body, with a half-life of bone lead approximately 20-30 years, even slight elevations of lead exposure may result in bioaccumulation and toxicity. Chronic lead exposure can cause harmful effects; neurological, gastrointestinal, hematological, and reproductive. The most recent data in 2021 from Kuwait showed 51% of adolescents had higher than recommended lead levels.

Conclusion: Lead contamination of water is a modifiable environmental health risk. In our study 62.5% of the samples had high lead levels. Identifying and eliminating the cause may help prevent health consequences to the population, especially in children.

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A Rare Presentation Of Penile And Scrotal Swelling Post Snake Antivenom Administration, A Case Report.

Duaa Al Lawati[1], Hassan Al Balushi[2], Muna Al Rajhi[3], Badria Alhatali Alhatali[4], Jonathan De Olano[5]

[1]1. Emory University School of Medicine, Department of Emergency Medicine, Division of Medical Toxicology, Atlanta, Georgia, USA. [2]3. Department of Emergency Medicine, Sohar, Oman. [3]4. Poison control section, Department of Environmental and Occupational Health, Ministry of Health, Muscat, Oman. [4]Poison control section, Department of Environmental and Occupational Health, Ministry of Health, Muscat, Oman. [5]Emory University School of Medicine, Department of Emergency Medicine, Division of Medical Toxicology, Atlanta, Georgia, USA

Abstract

Background: Oman is home to a variety of poisonous snakes. Most encountered snake bites are secondary to vipers which are hemotoxic. Currently the anti-venom used in the country is the Saudi polyvalent anti-snake venom (ASV). Most reported complication to this ASV include anaphylactoid reactions. However other rarely reported delayed reactions like serum sickness may also occur. Here we report a rare case of delayed reaction of penile and scrotal swelling after ASV administration.

Case Report: A 42-year-old male Bangladeshi farmer presented to the emergency department 2 hours after getting a snake bite to his left forearm. On examination, his initial vital signs showed a blood pressure of 123/72 mmHg; a heart rate of 112 beat per minute; a respiratory rate of 22 per minutes; saturation of 99% in room air. He presented with severe pain and swelling in his left forearm along with severe coagulopathy. His initial blood laboratory results showed platelets of 184 k/mm^3, prothrombin time more than 130 sec, INR more than 10, activated partial thromboplastin time more than 38 sec, and undetectable fibrinogen level. He received three doses each of 100ml of anti-snake venom (ASV) once a day for three days. During his admission, he developed compartment syndrome in his left arm and forearm, where his local examination showed extensive swelling of the limb with feasible radial pulse. Surgeons decided to treat conservatively with arm elevation, analgesia, and continuation of ASV.

On the fourth day of admission, he developed painless extensive swelling in his penile and scrotal area where diagnostic ultrasonography showed marked diffuse wall edematous thickening with no evidence of focal collection. This was the only reaction seen after the ASV was initiated. Apart from the ASV, patient was on amoxiclav injection 1.2g three times per day and oral amlodipine 5mg once daily. Patient was treated with intravenous hydrocortisone 100mg three times per day along with 20% human albumin once daily for three days due to development of hypoalbuminemia which was noticed on day three of admission. On day 9 of admission, patient's symptoms improved, and he was discharged on steroids and antihistamine. It was recommended to schedule appointment at the urology clinic for additional follow up, but unfortunately, the patient did not attend.

Conclusion: We present a case of isolated penile and scrotal swelling reaction that might be related to anti-snake venom administration. While these types of reactions are rare, it is important to understand the management.

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Evaluation Of Sensitivity Of Urine Drug Screening Test (Udss) Cutoffs Among Pediatric Age Group Attending Sultan Qaboos University Hospital (SQUH)

Muzna AlMuqarshi[1], Suad AlAbri[1], Nafila Alriyami[1], Sara Alshahi[1], Abdulaziz AlBahri[2], Fatma AlBarwani[2]

[1]Sultan Qaboos university hospital, Muscat, Oman. [2]Royal Oman Police, Muscat, Oman

Abstract

Background: Urine drug screening tests (UDSs) is a qualitative test that is considered a point-of-care test. cutoff levels are developed for adults and needs to be lowered in pediatric age group taking in consideration the physiological differences such as body mass index and urine dilution to avoid missing any positive cases. This study is designed to evaluate the sensitivity of current UDSs cutoff limits used In Sultan Qaboos university hospital (SQUH) for pediatric age group to come with more precise cutoff levels.

Method: This is an experimental prospective study conducted in SQUH, in which urine samples were collected from pediatric patients who were treated with opioid or benzodiazepines, analyzed using cup test (immunochromatography method) and immunoassay test (Enzyme multiplier immunoassay technique) and underwent dilution to lower the creatinine cutoff limits to match the pediatric physiological urine. Finally, to confirm the results, samples were analyzed using gas chromatography -mass spectrometry (GC-MS) which is the gold slandered test.

Results: A total of 88 patients were identified meeting the criteria for the study, these divided into 48.86 % (43 patients) as a control group and 51.13 % (45 patient). The study sample included 54 male and 34 females. The average age of the participants was 7 years with a median weight of 22.23 kg. Two group of drugs were examined in the intervention group; benzodiazepines (midazolam and diazepam) which account for 57.8 % and the rest of the samples contained opioids (morphine and fentanyl). All drugs were taken intravenously except for four samples that were been taken by oral rout. No significant difference in sensitivity and specificity overall before and after urine sample dilution, however in subgroups analysis, it is noticeable that sensitivity to opioids improved by 5.27 % after dilution (89.47% and 94.47% respectively). On the other hand, sensitivity to benzodiazepines were not affected by dilution process (70 %). There were no association between age, gender or weight and sensitivity before and after dilution.

Conclusion: In our study there was a 5.27 % false negative rate (4 cases) which in life threatening scenarios could be significant. This indicate that urine drug screening needs to be evaluated for pediatric, and further performance-based approach to establishing cutoff values for drug-screening immunoassays in pediatric population is needed.

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Emergence Of Opioid Misuse And Contamination: A Case Series Investigating The Surge In Presentations And Admissions At A Regional Hospital In The United Kingdom.

Rizwan Riyaz, Alina Humdani

University Hospital of Derby and Burton, Royal Derby Hospital, Derby, United Kingdom

Abstract

Background:

Opioid toxicity stands as the leading cause of drug poisoning fatalities in the UK. In 2021, 45.7% of the 4600 recorded drug poisoning deaths involved opiates, with heroin and morphine prominently featured. The recognition and treatment of opioid toxicity symptoms have been well-established, with over 17,000 admissions to UK emergency departments for drug overdose in 2019/20, guided by local and national protocols. However, the influx of opioids from unregulated sources has led to local variations in synthetic opioid composition, naloxone dosage requirements, and treatment duration. Notably, the emergence of highly potent Nitazene, a 2-benzyl benzimidaole synthetic opiate, was identified by NHS Scotland in 2023. Given the imperative for public health, this study delves into and reports on the heightened incidents of drug misuse presenting in the Emergency Department, as outlined below.

Case Series: 22 cases between 25th August 2023 and 8th September 2023 were collected, of patients presenting to a regional emergency department with opioid overdose. Of these, 36.0% were of no permanent address and demographics, 59.0% were 30-50 years of age, 81.0% were male. 2 urine toxicology screens were performed, 1 of which identified nitazene.

Discussion: With a sample size of 22 from one regional emergency department, it's evident that most patients needed escalating treatment from naloxone boluses to infusions lasting approximately 6 hours, indicating potent drug ingestion. About 50% required admission. Of the remaining 5 patients not given naloxone, 2 were undocumented, 2 situations were unsafe for staff, and 1 involved cocaine misuse. Many self-discharged before completing treatment, limiting urine toxicology analysis. Nitazene appeared in one of two samples, likely prevalent due to high naloxone doses. Internal limitations in testing were encountered, hindering sample processing, as local testing was not available for checking opioid contaminants.

Conclusion: More data from other UK regional emergency departments is essential to identify trends in opioid overdose cases requiring substantial naloxone, potentially signaling high synthetic drug potency. Distributing this information to local health agencies is crucial for testing patients for synthetic compounds such as nitazene, enhancing public safety. Strengthening networks for public safety, including providing take-home naloxone in community pharmacies, hotels, homeless shelters, and through outreach and peer-to-peer channels, is imperative to prevent community disasters.

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Metal Phosphide Poisoning Presented To Nepal's First Institution-Based Poison Information Center: A Case Series.

Rajesh Sharma[1], Ramu Kharel[2], Ayushma Pandit[1], Rishika Karki[1], Yagya Timilsina[3], Anish Mudvari[1,4], Ziad Kazzi[5], Pravin Prasad[1,4], Akritee Pokharel[1,4], Rakesh Ghimire[1,4]

[1]Poison Information Center, Drug and Toxicology Center, Tribhuvan University Teaching Hospital, Kathmandu, Nepal. [2]Department of Emergency Medicine, Warren Alpert Medical School of Brown University, Providence, USA. [3]ASK Foundation, Kathmandu, Nepal. [4]Department of Clinical Pharmacology, Tribhuvan University Teaching Hospital, Kathmandu, Nepal. [5]Department of Emergency Medicine, Emory University, Atlanta, Nepal

Abstract

Background: Metal phosphides are highly effective insecticides and rodenticides frequently used in agriculture to protect grains. Aluminum Phosphide (AlP) and Zinc Phosphide (ZP) are commonly used metal phosphides and generate highly toxic phosphine gas by the action of hydrochloric acid in stomach or water. Toxicity of phosphine gas include inhibition of mitochondrial oxidation with decreased mitochondrial membrane potential and inhibition of cytochrome oxidase, which leads to increased production of reactive oxygen species. AlP has extreme toxic effects to humans with a high mortality rate due to unavailability of specific antidotes.

Case Report: Since the establishment of the Nepal-Poison Information Center (Nepal-PIC) service established October 1st, 2023, eight cases of suspected metallic phosphide poisoning calls have been received. The Nepal-PIC is the first institution PIC in Nepal and established in a multi-stakeholder partnership. Three cases of AlP and five cases of ZP poisoning have been reported to the PIC. Majority of the cases (seven) were intentional self-poisoning. Of the three AlP (3 grams tablet) poisoning, two patients died and one survived. The surviving patient had ingested the AlP after dissolving in water in a glass. Those who died featured symptoms including confusion, vomiting, SBP < 80 mmHg, SPO2 < 80 %, and marked lactic acidosis at the time of presentation. They had received N-Acetyl cysteine (NAC) and Magnesium Sulphate (MgSO4) along with the supportive care. Four cases with zinc phosphide (powder form) poisoning recovered and one case lost to follow up. Time of consulting the PIC ranged from 1 to 9 hours after ingestion of poison. Nausea, vomiting, and pain abdomen were the most common symptoms at the time of presentation for both the poisoning.

Discussion: The findings show a high mortality with AlP self-ingestion, whereas ZP poisoning showed higher recovery rates. The specific antidotes are not available and even a small dose can lead to mortality of the patient. Extracorporeal Membrane Oxygenation (ECMO) has been effective in metal phosphide poisoning. Starting ECMO before irreversible cellular injury is lifesaving. In our case series none of the patients received ECMO. NAC restores glutathione synthesis and counteracts the damaging effect of free radical and thus has been tried in the management of AlP poisoning. MgSO4 acts as a membrane stabilization factor and reduces the fatal cardiac arrhythmias due to phosphine. In our case series, two of the AlP poisoning received NAC and MgSO4. Intravenous Lipid Emulsion acts as lipid sink for high lipid soluble toxins like phosphine and can reduce plasma levels of toxin reducing its toxicity. Hyperinsulinemia Euglycemia Therapy has been tried as it can restore hemodynamic state, and limit metabolic acidosis as it increases glucose uptake, pyruvate dehydrogenase activity.

Conclusion: Mortality and other complications are common in metallic phosphide poisoning. Powder forms of both AlP and ZP are relatively less hazardous. Supportive treatment at earliest possible, availability of promising new drug therapies and proper implementation of the regulated tablet form (3g) of AlP can lead to reduced mortality. The Nepal-PIC provides on-demand free expert consultation to healthcare providers across the country.

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The Process Of Establishing The First Institution0based Poison Information Center (PIC) In Nepal

Ramu Kharel[1], Rakesh Ghimire[2,3], Rajesh Sharma[2], Kabin Maleku[4], Adam Aluiso[5], Anish Mudvari[2,3], Ziad Kazzi[6]

[1]Department of Emergency Medicine, Warren Alpert Medical School of Brown University, Providence, Nepal. [2]Poison Information Center, Drug and Toxicology Center, Tribhuvan University Teaching Hospital, Kathmandu, Nepal. [3]Department of Clinical Pharmacology, Tribhuvan University Teaching Hospital, Kathmandu, Nepal. [4]Ask Foundation, Kathmandu, Nepal. [5]Department of Emergency Medicine, Warren Alpert Medical School of Brown University, Providence, USA. [6]Department of Emergency Medicine, Emory University, Atlanta, USA

Abstract

Background: Toxicological emergencies cause high mortality and morbidity in Nepal, a low-middle-income country in South Asia. The Nepal Ministry of Health and Population (MoHP) has recognized establishment of a poison center as one of the top health priorities to improve the nation's emergency care. We present the process of establishment of the first institutional poison information center in Nepal.

Establishment Methodology

Partnership Development**:** The first institution-based PIC was initiated through an international institutional lead from Brown Emergency Medicine (BEM), USA. BEM institutional faculty development grant received by the PI allowed the necessary funds creation of conceptual model, partnership development and program implementation. A partnership with BEM was made in Nepal with the Drug and Toxicology Center at Tribhuvan University Teaching Hospital (TUTH) and a non-profit partnership with ASK foundation. TUTH serves as the implementation partner in Nepal, and ASK foundation serves as logistical and other funding supporter in Nepal. Further, an international education partnership was made with the Emory Toxicology Section for international expertise, as no medical toxicology expertise is available in Nepal.

Staffing & Training: The center is staffed by trained Specialists in Poison Information (SPIs), who are medical graduates who have undergone an intense training program through Emory Toxicology Section. The SPIS receive continuing education through monthly webinars, weekly meetings with experts, and weekly internationally available lectures through American College of Medical Toxicology. PI (from BEM) and other investigators conduct a weekly QI session with the SPIS.

Service Delivery: A nationally available phone number is disseminated to health care providers across the country. SPIs are available for phone calls 24/7 and provide the initial direct telephonic consultation to healthcare professionals. l. Intake data is collected on RedCap and is aimed to describe the epidemiology of poisonings, envenomation, and chemical exposures in Nepal as presented to the PIC. To support their consultations, SPIS uses TOXBASE, a clinical toxicology database of the United Kingdom National Poisons Information Service. A list of volunteer international experts in medical toxicology are also available via Whatsapp for on-demand consultation to support the SPIS. Apart from direct consultation to health care providers, the Nepal-PIC builds toxicology education and capacity for health care providers in Nepal through national freely available webinars.

Sustainability: This is a pilot feasibility study establishing the first institutional poison information center in Nepal. An inauguration featuring Nepal's minister of health and key hospital leadership was completed with a goal of dissemination to the public and government. PIC leadership actively advocates

with policy makers for sustainability. Ultimately, the government must own the Nepal-PIC for its continued sustainability.

Conclusion: Telephonic toxicology consultations are effective in managing patients seeking poisoning care and are widely used in developed countries. This work studies the feasibility of establishing an institutional based PIC in Nepal through an international and multi-stakeholder partnership. This work is a direct result of the ECSA priorities to improve emergency care in Nepal and has the potential to provide a way to improve emergency toxicology care in Nepal.

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Illicit Drugs In Wastewater: A New Epidemiological Tool For Assessing Consumption In Algeria

Younes ZEBBIHE[1,2], Khadidja LIMANI[1,2], Abdelhakim Boudis[1], marta massano[3], Alberto Salomone[3]

[1]Faculty of Pharmacy, University of Algiers 1, Algiers, Algeria. [2]Central Laboratory- EHS Ali Ait IDIR, Algiers, Algeria. [3]Department of Chemistry, University of Turin, Turin, Italy

Abstract

Background: The collection of information on the prevalence of illicit drug consumption generally relies on various methods, such as face-to-face surveys, telephone interviews, self-administered questionnaires (paper or electronic), and the analysis of biological samples such as urine, hair, and blood. An innovative approach complementing these traditional methods involves the analysis of wastewater, allowing for the detection of drug residues. A pilot study in Algeria has been initiated, focusing on the analysis of wastewater from three sewage treatment plants in the wilaya of Algiers. Conducted between March 21, 2023, and May 31, 2023, this study aims to provide an overview of the profile of illicit drug and pharmaceutical consumption at the city of Algiers.

Methods: Samples were collected from three distinct stages, following a wastewater mapping of the city of Algiers. The analysis of illicit drugs and pharmaceutical substances was performed using high-performance liquid chromatography coupled with tandem mass spectrometry (HPLC-MSMS) after filtration.

Results: The primary substances identified at significant concentrations were paracetamol, pregabalin, and metformin. Several other substances (cocaine, heroin, morphine, codeine, carbamazepine, tramadol) were also detected, and factors of variation and determination were identified.

Conclusion: This type of study provides a comprehensive perspective on the drug consumption profile in a specific region, offering valuable information for health and safety management, as well as proposals for preventive measures and efforts against this issue.

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Honey, A Sticky Situation For The Heart!

Alaa Alhassan, Sanjay Ayathan

Shiekh Shakhbout Medical City Hospital, Abu Dhabi, UAE

Abstract

Background: Mad honey is known for its aphrodisiac, hallucinogenic effect and used as an alternative medicine for hypertension, diabetes, gastrointestinal tract disorders, cold ulcers, various viral infections as it has the highest level of antioxidant activity among other types of honey. Historically, it even served as a weapon in the Greek war of 401 BC.

Case Report: A 42-year-old previously healthy male was brought to the emergency department due to weakness and vomiting after ingesting honey brought from Nepal by his friend, who also experienced similar but less severe symptoms. Upon arrival, he was lethargic and confused. He had consumed 3 to 4 spoon full of honey harvested from special beehives in the forest behind his house. This caused him to develop vomiting and progressive weakness. In the ambulance, he received 400 micrograms of naloxone. Initial assessment revealed a patent airway, clear chest, equal breath sounds, but the patient was bradycardic with a heart rate of 28 and hypotensive with a blood pressure of 74/50. His oxygen saturation was 99% on room air, and he was awake and alert with a Glasgow Coma Scale score of 13 out of 15. His left pupil was dilated and non-reactive, while the right pupil was constricted and reactive, suggesting previous trauma. The initial ECG showed sinus bradycardia. Stabilization was initiated with atropine 0.5 milligrams and intramuscular epinephrine 1:1000 0.5 milliliters. Ondansetron was given, and intravenous hydration was administered. The patient transiently improved, with a Glasgow Coma Scale score of 15 out of 15, heart rate of 77, and blood pressure of 162/87. However, soon after he deteriorated, his blood pressure dropped to 80/50 and his heart rate to 50. Another dose of atropine and epinephrine was given, resulting in a heart rate of 80 and blood pressure of 167/68. The patient was then stabilized, admitted to the Intensive care unit, and moved to the ward for 1 day before being discharged.

Discussion: This is a case of mad honey syndrome, which is different from normal natural honey as it is contaminated with grayanotoxins, which leads to intoxication/poisoning upon consumption. These toxins are found in certain flowers, particularly in the Rhododendron genus. The honeybees extract the grayanotoxins from the nectar and pollen of these flowers. The regions where these flowers are commonly found include the Black Sea region of eastern Turkey, as well as North America, Europe, and eastern Asia. Grayanotoxin acts on sodium ion channels and muscarinic receptors. It can lead to life threatening cardiac disorders such as bradycardia and atrioventricular nodal block along with hypotension and respiratory depression. Other symptoms range from dizziness, diplopia, nausea, vomiting, headache and sweating to Impaired consciousness, ataxia, and generalized weakness. Muscarinic effects of grayanotoxin have also been reported, and a study showed that atropine can reverse both respiratory depression and bradycardia.

Conclusion: Prompt treatment involves intravenous atropine and fluid infusions for severe bradycardia and hypotension. In cases of complete atrioventricular block, temporary pacemakers are employed.

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An Intentional Sleep: A Review Of Two Years' Experience Of Patients With Benzodiazepine Overdose Presenting To The Emergency Room.

Darpanarayan Hazra[1,2], Gina Maryann Chandy[1], Kundavaran Paul Prabhakar Abhilash[1]

[1]Christian Medical College and Hospital, Vellore, India. [2]Sultan Qaboos University Hospital, Muscat, Oman

Abstract

Background: Deliberate self-harm (DSH) is a major health concern in developing countries. These emergencies are associated with high mortality and morbidity. Several factors influence the outcome of patients. The goal of this study is to better understand the profile and outcomes of patients with benzodiazepine (BZD) overdose presenting to the Emergency Department (ED).

Methods: This retrospective study, conducted in the ED, included all patients with BZD poisoning over two years. Various determinants and outcomes related to BZD toxicity were systematically coded and analyzed.

Results: Our study included 95 patients with BZD overdose and other drug overdoses in addition to BZD. The mean age was 36.52 (SD: 14.2) years, with a female predominance (n-56, 59.9%). Interpersonal issues (relationship failure, etc.) (n-48; 50.5%) and domestic fights or abuse (n-37; 38.9%) were the most common reasons. Single drug overdose (BZD) was more common in the 46-60-year-old age group. Drowsiness (n-45; 47.4%), and nausea and vomiting (n-32; 33.7%) were the predominating presentations. A history of psychiatric illnesses was noted in 17 (17.9%) patients. Fourteen (14.7%) patients required definitive airway stabilization in ER, whereas 2 (2.1%) patients had compromised circulatory systems and required ionotropic support. Flumazenil was used in 19 (20.0%) patients, with no documented side effects. The majority (n- 49; 51.6%) of patients were admitted, 9 patients (9.5%) were discharged stable, remaining 37 (38.9%) patients left against medical advice. There were no mortalities.

Conclusion: Middle-aged females were most involved in DSH. Only BZD overdose was more common in the middle-aged group. Predominant complaints included drowsiness and abdominal symptoms. Most of these patients warranted hospital admission. There were no mortalities among the study population.

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Clinical Implications Of ECG In Patients Presenting To ED With Drug-Overdose & Organo-Phosphorous Poisoning.

Darpanarayan Hazra[1,2], Gina Maryann Chandy[1], Kundavaran Paul Prabhakar Abhilash[1]

[1]Christian Medical College and Hospital, Vellore, India. [2]Sultan Qaboos University Hospital, Muscat, Oman

Abstract

Background: Drug overdose and organo-phosphorous (OP) poisoning are one of the most common forms of deliberate self-harm (DSH) in our society. Some drugs and OP compounds have well-described electrocardiographic (ECG) manifestations in the event of toxicity. This study aims to determine the clinical implications of an electrocardiogram (ECG) in patients with an alleged history of DSH (drug overdose and/or OP poisoning) presenting to the ED.

Methods: We conducted this retrospective study over one and a half years (October 2018 – April 2020). Demographical data, clinical presentations and ECG findings were extracted from the hospital's electronic database, coded, and analyzed.

Results: Our study population included 364 (0.32%) patients with DSH (OP poisoning and drug overdose); of which the majority (n-224; 61.5%) had presented with a drug overdose. The mean age of the cohort was 33.9 (SD: 13.1) years, with a female preponderance (n-222; 60.9%). The most common presenting complaints were vomiting (n-180; 49.5%), other gastrointestinal complaints (n-146; 40.1%) and giddiness (n-122; 33.5%). At the presentation to ED, the majority had a qSOFA ³ 2 (n-212; 58.3%). The most common drugs noted to be consumed singly included Benzodiazepines (n-42, 11.5%), Paracetamol (n-38; 10.4%), and Tricyclic anti-depressant (n-20; 5.5%). Polydrug intoxication was seen in 68 (18.7%) and co-ingestion with OP was seen in 26 (7.2%) patients. ECG changes (QTc prolongation) were seen in a statistically significant number of patients (0.004) with drug overdose or OP poisoning. All patients were advised to be admitted after initial stabilization and emergency management; however, 73 (20.1%) patients left the ED against medical advice. During their hospital stay, seven (1.9%) patients succumbed to their illness.

Conclusion: Middle-aged female patients are more prone to DSH; with gastrointestinal complaints as the most common presenting symptom. In patients with drug overdose or OP poisoning, ECG changes (QTc prolongation) were noted in most of the study population.

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Retrospective Study On Sodium Valproate Toxicity In Patients Presenting To Emergency Department.

Enas Hamid Alkhanjari, Darpanarayan Hazra, Suad Al Abri

Sultan Qaboos University and Hospital, Muscat, Oman

Abstract

Background: Sodium Valproate (SV) overdose has many clinical manifestations; the central nervous system (CNS) depression and metabolic disturbances are the two main effects of VPA poisoning. This retrospective study seeks to enhance our understanding of the clinical presentation, management, and outcome of acute and chronic sodium valproate toxicity in the Emergency Department (ED).

Methods: This retrospective observational cohort study was conducted in the ED of a tertiary care hospital from January 1st, 2012, to January 1st, 2021. We included all patients who had serum Valproate levels sent from the ED and were found to be above the therapeutic range (> 692 μmol/L). Acute cases included individuals presenting within 24 hours of intentional or accidental SV ingestion, while chronic toxicity included patients on long-term therapeutic SV who exhibits toxicity symptoms from accumulated high levels with no history of acute overdose.

Results: Out of 4034 serum SV levels reviewed, 368 cases were found to be above the therapeutic range, with a VPA toxicity prevalence of 9.12%. Among those only 86 patients met the inclusion criteria. Males accounted for 63.9% (55/86), and the mean age was 18.76 (SD: 15.65) years. Most of the cases were of chronic toxicity 83 (96.5%) and only 3 (3.5%) were acute toxicity. Initial Valproate levels at presentation for patients with acute toxicities were 2243.0 (Interquartile range: 1179.0) vs. 764.5 (Interquartile range: 95.5) in chronic cases. Neurological symptoms were the most common presenting complaints, with seizures reported in 65 (78.3%) of chronic toxicity cases and 1 (33.3%) of acute toxicity cases. This was followed by gastrointestinal symptoms in 26 (30.2%) cases, with 24 (28.9%) in chronic toxicity cases and 2 (66.7%) in acute cases. Respiratory symptoms were reported only in chronic toxicity, affecting 23 (27.7%) cases. Cardiac symptoms were observed in only a few cases, 4 (4.8%) in chronic toxicity. Laboratory findings showed abnormal platelet counts (12, 14.5%) and abnormal total white blood cell counts (16, 19.3%) in chronic toxicity cases only. Abnormal initial renal function tests were reported in 51 (58.6%) cases (chronic: 50 (60.2%) vs. acute: 1 (33.3%), and abnormal initial liver function tests were seen in 16 (18.6%) of chronic toxicity cases only. Non-invasive ventilation was used in 18 (21.7%) of chronic toxicity cases, and intubation and mechanical ventilation were required in only two cases. One patient received single dose activated charcoal, another patient required intubation and mechanical ventilation, and a third patient required non-invasive ventilation. The majority (45/86, 53.3%) could be discharged from the ED, while 46.8% (41/86) required admission, with no mortality directly related to toxicity.

Conclusion: Chronic toxicity cases were more common compared to those of acute toxicity. Neurological symptoms, particularly seizures, were the most frequently observed manifestations in chronic toxicity. Nearly half of the patients necessitated hospital admission, and there was no reported mortality directly related to the toxicity.

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Lithium Toxicity: A Retrospective Study At A Tertiary Academic Hospital Of Oman.

Hazaa Humaid Mohammed Alghafri, Nawaf Mohammed Abdullah Al Hatmi, Darpanarayan Hazra, Suad Al Abri

Sultan Qaboos University and Hospital, Muscat, Oman

Abstract

Background: Acute lithium toxicity manifests in various symptoms, predominantly affecting the central nervous system (CNS), with chronic toxicity potentially impacting the renal system, causing mild cardiovascular symptoms, and affecting the gastrointestinal and endocrine systems. We aimed to describe the clinical presentation and outcome of patients with lithium toxicity presented to the ED.

Methods: This retrospective observational study was conducted in the ED of a tertiary academic care hospital from January 1st, 2011, to January 1st, 2023. We included all patients who were found to have high lithium levels above the therapeutic range (>1.2 μmol/l). Based on the clinical presentation, it was divided into acute and chronic toxicity.

Results: Out of 293 reviewed patients, a total of 38 patients were included. Of these 26 (8.9%) presented with acute toxicity, while 12 (4.1%) exhibited symptoms of chronic toxicity. The mean age for the acute toxicity group was 38.77 (SD: 10.2) years, and for the chronic toxicity group, it was 34.92 (SD: 9.81) years. Both groups displayed a female preponderance, with 18 (69.2%) in the acute and 8 (66.7%) in the chronic toxicity group.

In acute toxicity cases, 73.1% (n-19) experienced mild toxicity, 11.5% (n-3) moderate toxicity and 15.4% (n-4) had severe toxicity; all chronic cases exhibited moderate toxicity. Neurological symptoms were the most common reported complaints (65.9%, n-25). In acute toxicity cases, neurological symptoms were seen in 16/26 (61.5%) patients. The majority presented with tremors (7), followed by altered mental status (5), ataxia (3) and seizures (1). While in chronic toxicity, neurological manifestations were the most common presentation seen in 10/12 (83.3%). Symptoms included tremors (4), seizures (3), and hallucinations (3). This was followed by gastrointestinal symptoms (11.5%, n-3), and respiratory symptoms (3.8%, n-1) in the acute toxicity group. None of these symptoms were seen in the chronic toxicity group.

A significant number of patients had deranged kidney function tests (acute case: 9 (34.6%) vs. chronic case: 4 (33.3%)). Abnormal ECG findings were noted in 11.5% (n-3) of acute toxicity cases. Low Na levels were seen in two acute toxicity cases, whereas four patients had low Na levels in chronic cases. In acute toxicity cases, two patients required intubation and mechanical ventilation, while 26.9% (n-7) needed non-invasive ventilation in the ED. None in the chronic group required invasive or non-invasive ventilation; four patients were managed conservatively with an O2 mask. One patient in this group required hemodialysis. Single dose activated charcoal was administered only in one patient with acute toxicity. Most acute toxicity cases (69.2%, n-18) were discharged from the ED. However, half of chronic toxicity cases required in-hospital admission for further management.

Conclusion: Our study revealed the prevalence of 8.9% acute and 4.1% chronic toxicities among 293 patients. Neurological symptoms were very common presentation in the chronic toxicity group, whereas acute had other clinical symptoms in addition to neurological symptoms. More than half of the acute cases were successfully managed and discharged from ED, while half of chronic cases required in-hospital admission for further management.

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Pediatric Oral Neonicotinoids Exposure, Case Report And Literature Review

Aya AalHamad, AlShiama Sami, Suad Al Abri

Sultan Qaboos University Hospital, Muscat, Oman

Abstract

Background: There is escalating utilization of neonicotinoids which is a relatively new class of insecticides. They exhibit agonistic effects at postsynaptic nicotinic receptors in insects and are believed to have low toxicity in humans due to low affinity to the nicotinic acetylcholine receptor (nAchRs). The reported toxicity after acute exposure is scattered but increasing due to the increased use of these insecticides. Children are expected to have higher toxicity after oral exposure. We report a case of unintentional neonicotinoid oral exposure in a child.

Case Report: A 4-year-old child arrived at the emergency department (ED) one hour after unintentionally consuming a whole apple contaminated with Clothianidin, a neonicotinoid insecticide injected into the apple as a rodenticide. The ingested dose was approximately 70 grams of 50% clothianidin. Upon arrival at the ED, the child displayed minimal abdominal pain. Initial assessment revealed normal vital signs, full consciousness and altered child. Clinical examination including abdominal exam was normal. Laboratory tests, including venous blood gas samples, were unremarkable. The child was administered paracetamol, observed for four hours, and subsequently discharged home with good follow up.

Discussion: Recent studies suggest potential adverse effects on mammals, including humans, such as cytotoxicity, genotoxicity, reproductive issues, neurotoxicity, immunotoxicity, hepatotoxicity, and hepatic carcinogenicity. Children's primary exposure route is through their diet, as exemplified in our case study. Although our patient presented solely with abdominal pain, documented clinical manifestations encompass neurological symptoms (disorientation, agitation, drowsiness, dizziness) and gastrointestinal issues (vomiting, throat pain, abdominal pain, GI tract ulcers).The most common routes of exposure were ingestion (51%), followed by dermal (44%), and then ocular (11%). The most reported adverse clinical effects were ocular irritation (6%), dermal irritation (5%), nausea (3%), vomiting (2%), oral irritation (2%), erythema (2%), and red eye (2%). Data also indicates that most neonicotinoid exposures reported to poison centers are likely managed outside healthcare facilities, with minimal anticipated clinical effects. Currently, there is no specific antidote for neonicotinoid poisoning in mammals. Decontamination and symptomatic, supportive care constitute the standard treatment. Additionally, some patients may exhibit cholinergic syndrome, justifying the judicious use of atropine.

Conclusion: Neonicotinoids are increasingly utilized in agriculture, horticulture, fish farming, and domestic pest control. While they generally lead to less severe outcomes compared to other major types of insecticides, there is a crucial need for further studies to explore the potential human health effects of neonicotinoid exposure especially in the pediatric population. Our case exhibited minimal clinical effects, consistent with findings reported in existing literature.

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Case Series: Occupational Exposure To Lead Among Mechanics In Kuwait

Mohammad Bouhamad, Abdullatif Aloumi

Kuwait Poison Control Center, Kuwait City, Kuwait

Abstract

Background: Lead toxicity can result in serious health effects. Occupational exposure is a route for chronic lead toxicity that needs evaluation. Mechanics are among the high-risk groups that have a potential for chronic lead exposure. Due to the non-specific signs and symptoms that patients can present with, the diagnosis of chronic lead toxicity in the emergency department (ED) can be difficult to conclude. We describe a case series of 5 mechanics that were assessed for lead toxicity due to their high-risk occupation.

Methods: This is a case series of 5 patients presented to a single ED with non-specific signs and symptoms. Mood instability, headache, and altered bowel habits were the most reported symptoms. An occupational history revealed their common factor which was working as car mechanics. Several diagnostic tests were done including whole blood lead level. Our null hypothesis is that mechanics in Kuwait have lead levels <3.5 mcg/dL.

Results: All patients had a detectable lead level. 4 out of the 5 patients (80%) had a whole blood lead level >3.5 mcg/dL (3.08-4.92 mcg/dL). The median and mean were 3.84 and 3.93 mcg/dL respectively.

Discussion: Lead has no biological function in humans. Awareness of lead toxicity over the past decades resulted in the decrease of the recommended lead levels especially in the pediatric population. The latest recommendation from the CDC stated that a normal lead level in both adults and children is less than 3.5 mcg/dL, which falls below the 97.5% percentile. 4 out of the 5 mechanics who were tested for lead had higher than recommended lead level. Despite not requiring an active medical management (chelation therapy), they were advised to improve their personal protective equipment (PPE), report new symptoms that may occur, follow up of lead level, and they were provided awareness of lead poisoning.

Conclusion: 80% of Mechanics that were tested had higher than recommended whole blood lead level. Long term lead exposure can lead health effects. Better awareness in high-risk occupations of lead poisoning is warranted.

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Scopolamine Transdermal Patch Toxicity In Pediatric, A Case Report And Literature Review

Majid Al-Bahri, Sumira Iram, Suad Al-Abri

Sultan Qaboos University Hospital, Muscat, Oman

Abstract

Scopolamine Transdermal Patch Toxicity in
Pediatric, A Case Report and Literature Review

Majid Al Bahri 1, Sumira Iram 1, Suad Al Abri 1

1 Emergency Medicine department at Sultan Qaboos University Hospital

Background: Scopolamine transdermal patches (STP) is antimucarinic agent commonly used to treat motion sickness and excessive oral secretion. Anticholinergic poisoning resulting from oral and parenteral administration of scopolamine is well recognized. However, clinicians may not be aware of the potential side effects of a topical transdermal scopolamine specially in inadvertent pediatric high dosing. We report a pediatric case presented with anticholinergic toxicity following unintentional high dose exposure to scopolamine transdermal patch.

Case Report: We present a 3 years-old child known case of developmental delay and seizure on STP for excessive oral secretion. She was prescribed a dose of 0.25 mg for 72 hours. The transdermal patch is 1.5 mg, and the mother was supposed to cut it but she by mistake applied the entire patch. Child was brought in within 12 hours with irritability and agitation, protruding tongue repetitive with dryness, and warm body feeling.

On examination, she was irritable, with dry mouth and dilated pupils. Vitals and the rest of clinical exam was unremarkable. She was kept for observation and improved clinically and was discharged on good condition with instruction to mother on proper dosing

Discussion: The range of toxicity for scopolamineis variable and unpredictable. Symptoms and signs of anti-cholinergic poisoning may occur following oral ingestion or ocular instillation as well as dermal. The transdermal scopolamine system consists of an outer layer of aluminized polyester, a reservoir of scopolamine, a microporous polypropylene membrane that controls the rate of diffusion, and a final adhesive layer, and it contain 1.5 mg that last over 72 hours.

The anticholinergic syndrome is a well-documented side effect of transdermal scopolamine specially in adults but very few case reports in pediatric .Toxicity symptoms have been reported and can be severe and require an intensive care unit (ICU) admission due neurological deterioration and bilateral mydriasis six hours after application of a patch containing 1 mg of scopolamine to reduce bronchial secretions.

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Perampanel Toxicity: A Case Report

Mohamed Alfardan, Ibraheem AlZaabi, Sudeshna Byng

SSMC, Abu Dhabi, UAE

Abstract

Background: Perampanel is a novel, long-acting, non-competitive antagonist of AMPA glutamate receptors. It is used to treat partial-onset and generalized tonic-clonic seizures in people older than 12 years old and it has been shown to reduce seizure frequency in a concentration-dependent manner, with a maximum daily dose of 12 mg. Little is known about its toxicity in overdose settings. We report a case of acute perampanel overdose in an adult.

Case Report: A 35-year-old female with epilepsy was brought to the emergency department (ED) by ambulance 60 minutes after an intentional overdose of 160 mg of perampanel. She was found unresponsive at her home and sustained a self-limited generalized tonic-clonic seizure during transport. In the ED, her vital signs were as follows: T 36.6, HR 45, BP 90/48, RR 15, O2sat 100% RA. Her neurological examination revealed: PERL2mm bilaterally, GCS 7, and occasional focal seizure activity in her left hand. Additional history obtained from her sister revealed recent depressive symptoms including suicidal ideation. She also noted that the patient was only taking perampanel and there was no history of co-ingestion. Given her level of consciousness, ongoing seizure activity, and the extended elimination half-life of perampanel, the ED team decided to intubate her and administer activated charcoal via a nasogastric tube.

Her diagnostic evaluation revealed: ECG showed sinus bradycardia, ABG pH 7.31, CO2 52, HCO3 26, and lactate 0.5, and a non-contrast head CT was unremarkable. The toxicology screen was negative for APAP and salicylate, but ethanol was not tested.

The patient was admitted to the ICU where she self-extubated on hospital day two and made an uneventful recovery. Neurology was consulted on hospital day four to adjust her anti-epileptic medications. She was subsequently transferred to a psychiatric facility one week after her admission.

Discussion: A review of the literature reveals limited information on the toxicologic profile of perampanel. Most case studies report the resolution of toxicity with supportive care, and none document seizures or death as an outcome. The average recovery time reported was 4.4 days. The presence of seizure activity in this case, in the absence of other pro-convulsant drugs, is an interesting finding that requires further investigation. Questions raised include perampanel's potential pro-convulsant properties in overdoses that, similarly to carbamazepine, may have a distinct mechanism (e.g., sodium channel blockade).

Conclusion: We document the first case of perampanel overdose (13.3 times the maximum daily dose) that presented with seizure activity. This represents a signal indicating the need for further investigation by pharmacovigilance agencies. This case also highlights the importance of proper supportive care and airway management when considering the extended elimination half-life of this drug and the potential for complications.

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Case Report: Successfully Managed Aluminum Phosphide Poisoning

Karwan Mohammed[1,2], Habib Ahmadi[2], Basmman Gwad[2]

[1]Kurdistan Higher Council of Medical Specialties, Erbil, Iraq. [2]Rozhawa Emergency Hospital-Erbil, Erbil, Iraq

Abstract

Background: Aluminum Phosphide (ALP) is named as rice tablet in Iran and It is a commonly used rodenticide in Iraq. After ingestion of ALP, it interacts with the Humidity of the stomach and releases the highly toxic phosphine gas in the gastrointestinal tract. This gas produces severe toxicity to various cells and causes refractory shock, abnormal cardiac rhythm, severe metabolic acidosis, and Hepatorenal Impairment.

Case Report: A 27-year-old Lady presented to Emergency Room with repeated attacks of vomiting after one hour of ingestion of one tablet (3 g) of Aluminum Phosphide as a suicidal attempt. Although the mortality of ALP poisoning is very high, it has been reported about 70- 100% with ingestion of only 500mg of ALP. This case survived successfully even after developing refractory shock, severe metabolic acidosis, elevated liver enzymes, aspirated pneumonia, and acute respiratory distress syndrome.

Discussion: ALP poisoning is usually fatal. However, vigorous resuscitation and supportive management in both Emergency Room and Intensive Care Unit, evidence of various medications such as magnesium sulphate, trimetazidine, high dose of N-Acetyl Cysteine, vitamin E and other interventions such as mechanical ventilation including both invasive and Non-Invasive Ventilation can save the life due to ALP poisoning.

Conclusion: although ALP is a lethal poisoning and there is no specific antidote but, we could manage this case successfully, which might be contribute to early use of Caster Oil to decrease Absorption in the ER, intensive monitoring and supportive treatment with Norepinephrine, Sodium bicarbonate, magnesium sulphate, high dose of N-Acetyl Cysteine, vitamin C & E, Hydrocortisone and Non-Invasive Ventilation (Continous Positive Airway Pressure) plus antibiotic for Aspirated Pneumonia. This can add more evidence of successful management of ALP poisoning.

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“Kagat Ni Dupong”A Case Report Of Pit-Viper Venom Induced Consumptive Coagulopathy

Josephine Sande D. Jaraba, RN, MD 1, Rutchell A. Simene, MD, FPAFP, DPSCOT, Ma. Ermela C. Talaver, MD, FPAFP 3Northern Mindanao Medical Center, Cagayan de Oro City, Philippines

Abstract

Introduction: The venomous snakes of Southeast Asia are generally divided into two important families, Elapidae and Viperidae. Snake elapids typically cause neuromuscular effects while vipers commonly cause blood clotting dysfunction. Despite its significance, only a few studies of snakebite envenomation are conducted in the Philippines.

Objectives: The objective is to present a case of severe pit-viper envenoming and its clinical outcome in the absence of specific antidote managed by family medicine in a tertiary hospital highlighting the significance of multidisciplinary intervention and biopsychosocial approach.

Methods: An observational descriptive study was utilized, and an informed consent was obtained.

Results: A case of 43-year-old Filipino male from Talakag, Bukidnon was referred to a tertiary hospital due to snakebite injury of his right foot. Patient described the snake as yellow green in color, diamond-shaped head, measuring around 3 feet long that he confirmed it to be a “dupong” a dialect term for a pit-viper snake. He was initially treated at a local infirmary hospital and was subsequently transferred to Northern Mindanao Medical Center (NMMC). At the NMMC emergency department, patient came in with active bleeding at the bitten limb. Twenty-four (24) hours after admission, symptoms of venom-induced consumptive coagulopathy (VICC) developed then worsened as signs & symptoms of compartment syndrome became prominent. Consequent severe anemia, tissue necrosis of the bite site, hypoalbuminemia, hypokalemia, pleural effusion, and severe sepsis subsequently occurred. The constellation of clinical manifestations from a severe pit viper envenomation culminated to a below-the-knee amputation of the affected limb after several attempts of surgical intervention such as fasciotomy, multiple debridement, reverse sural flap procedure, and cross-leg with external fixator. Comprehensive patient-centered, family-focused, and community-centered holistic care were utilized to address each biomedical and psychosocial problem throughout the phases of illness. After hospital discharge, the patient came for follow up visit and went on rehab and psychosocial therapy.

Discussion: Venom-induced consumptive coagulopathy (VICC) caused by pit viper envenomation has a complex pathophysiology affecting multiple steps of the coagulation pathway. The diagnosis of VICC can be made based on a history of snakebite, physical findings, and evidence of coagulopathy due to factor consumption. This can be confirmed by an abnormal INR, or PT, or low or undetectable fibrinogen and an elevated D-dimer (at least 10 times the upper limit of normal). in this case, cascading effect of venom induced consumptive coagulopathy has led to compartment syndrome which occurs due to a vicious cycle of edema causing hypoxia and acidosis, increased capillary permeability and fluid extravasation, thereby compromising the circulation and causes irreversible muscle and nerve damage.

Conclusion: The prognosis of venom-induced consumptive coagulopathy (VICC) is always life threatening. Timely diagnosis, medical treatment, and surgical intervention of the multidisciplinary team play an important role in managing holistically the effect of envenoming, its complications, and permanent disability.

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Rhabdomyolysis Following Sea Snake Envenomation, A Case Report From Oman.

Sulayyem Al Harsousi[1], Hassan Al Balushi[2], Badria Al Hatali[3], Alaya Al Kindi[2]

[1]Emergency Medicine Resident, Oman Medical Specialty Board, Muscat, Oman. [2]Department of Emergency Medicine, Sohar Hospital, MOH, Sohar, Oman. [3]Department of Environmental and Occupational Health, MOH, Muscat, Oman

Abstract

Background: Sea snakes are frequently encountered venomous reptiles inhabiting the warmer regions of the Pacific and Indian Oceans. Around 20% of bites result in significant envenomation, and approximately 3% of cases can be lethal. The sea snake bite is generally painless and causes minimal damage to the local tissue. However, systemic effects because of myotoxicity and neurotoxicity can become evident after a silent phase, that may extend for several hours. This case report aims to contribute to the existing literature in the region by presenting, a case of sea snake bite in the Sultanate of Oman.

Case report: A 19-year-old male patient with no significant past medical background, was admitted with a history of a sea snake bite at his right foot while fishing. He developed mild pain at the bite site, followed by malaise, body aches, and mild headache. Presented to the emergency department three hours post incident. His vital signs at emergency triage were normal. He had clear fang marks on the dorsum aspect of his right foot (figure 1). The rest of his systemic examination was unremarkable. Patient did not have any picture of the snake, but he was able to recognize a similar sea snake, when shown to him pictures of sea snakes (Figure 2). The laboratory investigations as shown in Table 1. The patient was admitted in-hospital and received aggressive hydration of 200 ml/hr, and intravenous Augmentin1.2 grams twice per day for 3 days. No anti-snake venom (ASV) started, as specific sea snake ASV is unavailable. He was discharged on third day of admission with an excellent recovery.

Discussion: Sea snakes rank as the most abundant and widely distributed venomous reptiles worldwide. They inhabit a variety of tropical regions, including the tropical Pacific and Indian oceans. Except for the genus Emydocephalus, nearly all sea snakes are venomous. Sea snakes are rarely aggressive, may bite humans in self-defense or when taken by surprise. Severe poisoning can lead to a high risk of death, especially if proper medical treatment is not given. The mortality rate from poisonous sea snake bites can be as high as 50 percent. Toxic effects of sea snake envenoming predominantly cause myotoxicity, which may further lead to, severe rhabdomyolysis, acute kidney injury, hyperkalemia, and cardiac toxicity. Neurotoxic effects, represented by flaccid paralysis, because of post-synaptic venom action, have been documented in Australia, and in a case report at Bondi beach.

The mainstay of treatment in the emergency department is supportive care that should include intubation if needed. Antivenom therapy might be necessary for sea snake envenomation depending on the severity of the case. It is most effective when given early. The recommended antivenom is Sea Snake Antivenom.

Conclusion: Rhabdomyolysis is a known complication post sea snake envenomation. Keeping high index of suspicion and close monitoring of the patient is important. The mainstay of treatment of sea snake envenomation is supportive and to provide Sea snake antivenom if available, depending on case severity.

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Borago Officinalis-Induced Liver Injury

Fatma AL Balushi[1], Songül Kurşun[2], Ziad Kazzi[1], Vildan ÖZER[2]

[1]Emory University School of Medicine, Department of Emergency Medicine, Division of Medical Toxicology, Atlanta, Georgia, United States., Atlanta, USA. [2]Karadeniz Technical University Faculty of Medicine, Department of Emergency Medicine, Turkey., Trabzon, Turkey

Abstract

Background: Borago officinalis, commonly known as borage, is a medicinal herb with reported anti-inflammatory and hepatoprotective properties. Despite its traditional use, there is limited evidence regarding its safety. Cases of herb-induced liver injury (HILI) associated with borage consumption are rare. Here, we present a case of Borago officinalis-induced liver injury in a patient who accidently consumed the plant.

Case Report: A 66-year-old male presented to the emergency department with shivering, nausea, and vomiting approximately 19 hours after consuming a meal made from Borago officinalis leaves harvested from his own garden, where the plant grew naturally. The confusion arose as they mistook it for Trachystemon orientalis, a commonly used natural edible food supply in the East Black Sea region. Upon presentation, vital signs and physical examination were normal, and an electrocardiogram (ECG) revealed a normal sinus rhythm. Laboratory investigations showed elevated liver function tests with ALT 628 U/L (range 0-45), AST 746 U/L (range 0-35), GGT 402 U/L (range 0-55), ALP 192 U/L (range 30-120), direct bilirubin 2.35 mg/dl (range 0-0.2), and total bilirubin 4.73 mg/dl (range 0.3-1.2). Venous blood gas lactate was 2.5 mmol/L (range 1-1.55). LDH was elevated at 624 U/L (range <248), and CRP was 24.8 mg/dl (range <5), accompanied by a high procalcitonin level of 7.14 microgram/L (range <0.5). A hepatobiliary ultrasound scan showed no morphological abnormalities in the liver. The patient was promptly treated with N-acetylcysteine (NAC). Liver function tests demonstrated a significant downward trend, nearly halving within two days of admission. Two days' post-discharge, follow-up assessments revealed normal liver function tests.

Conclusion: This case highlights the potential hepatotoxic effects of Borago officinalis and underscores the importance of accurate plant identification to prevent inadvertent ingestion of toxic botanicals.

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National Survey: " Assessment Of The Exposure To Agropesticides Among Farmworkers In Morocco "

Imane Iken[1,2], Naima Rhalem[3], Hanane Chaoui[3], Narjis Badrane[3], Hind Hamzaoui[3], Abdelghani Asraoui[3], Laila Aoued[3], Amina Ichane[3], Naima Ait Daoud[3], Rachida Soulaymani[3], Adelmajid Soulaymani[1]

[1]Medical and Biological Laboratory Research, Ibn Tofail university, kenitra, Morocco, Kenitra, Morocco
[2]Life and Health Sciences Research Laboratory at the Medicine and Pharmacy university, Tangier, Morocco
[3]Poison Control and Pharmacovigilance Center of Morocco, Rabat, Morocco

Background: Significant challenges are presented by the growing use of agricultural pesticides in emerging economies like Africa. Because of its limited resources. Africa is known for using fewer pesticides overall, which are frequently less expensive but may be more toxic. This has significant effects on both the environment and human health. Nevertheless, few research, have investigated the variables impacting farm worker safety practices when using pesticides in our country. **Objective:** The purpose of our study was to assess Moroccan agricultural applicators' behavior and exposure when using pesticides.

Methods: Thus, we conducted a cross-sectional observational study with a focus on descriptive and analytical aspects over a period of three months in two regions of Morocco. We have gathered 800 farmers (400 per area) with a confidence level of 95%. The characteristics of farms, their knowledge of pesticides, perceived risk, health effects, and information on safety behavior have all been gathered and analyzed. The second part of the survey focused on assessing pesticide exposure by conducting toxicological tests on the farmers' biological matrices.

Results: The survey response rate was 99.5%. The average age of the farmers was 48.42 ±14.97 years, with a male predominance. This population is illiterate in 37% and without agricultural training in 67%. Pesticides were insecticides in 40%, fungicides in 16.5% and herbicides in 15%. Twenty-five percent of farmworkers did not wear any personal protective equipment (PPE). As for empty packaging, 51.2% is incinerated, while 24.4% is directed to landfills. here is a noticeable discrepancy in the adherence to good pesticide practices, before, during and after handling. Farmers consequently displayed a high incidence of health issues associated with pesticide use (such as headaches, eye injury and skin irritation).

Conclusion: Our results underscore a pressing need for targeted interventions and awareness programs to improve safety practices among Moroccan farmers during pesticide handling, mitigating potential adverse effects on human health and the environment.