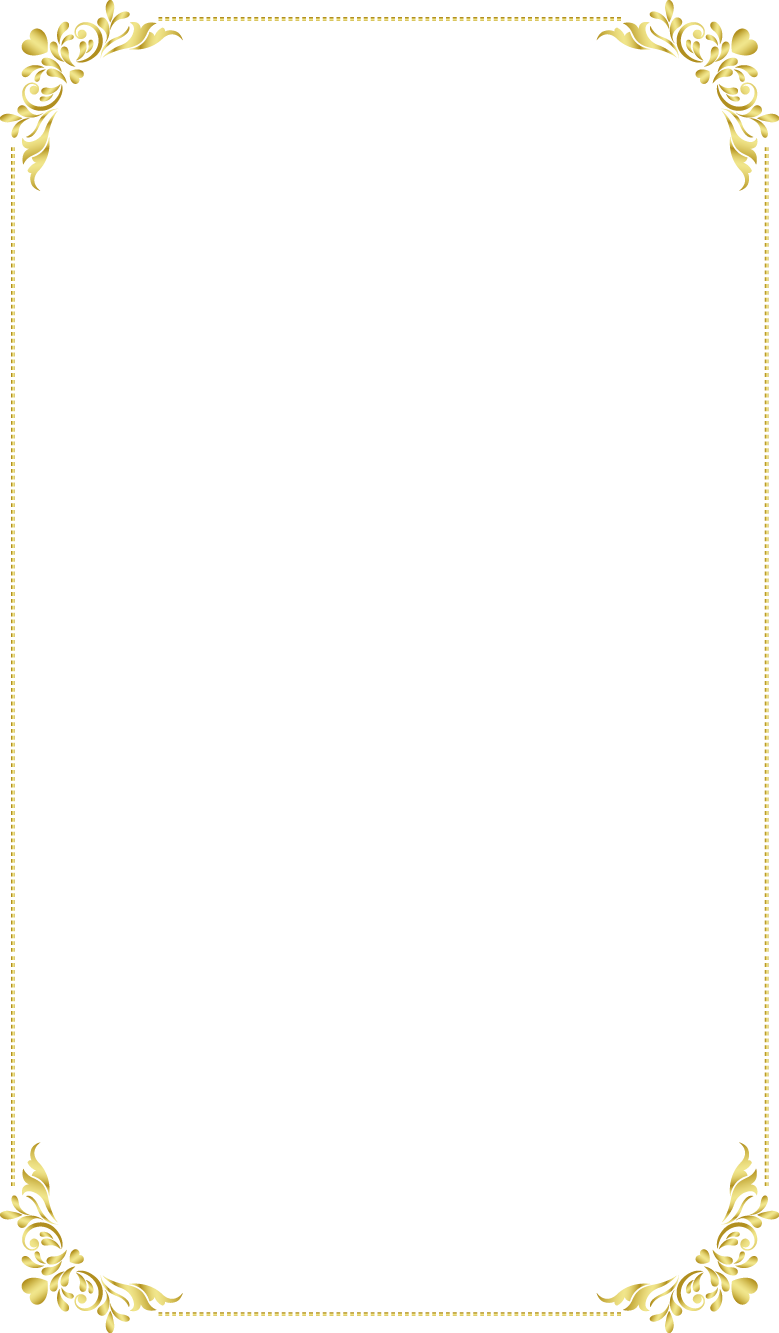
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**Qena Faculty of Medicine**

**Vice Dean Research Office**

**Institutional Review Board (IRB)**

**Poisoning among Children in Qena University Hospital: Retrospective Study**

**Thesis**

**Submitted for Partial Fulfillment of Master Degree in Forensic medicine and Clinical Toxicology**

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**List of ABBREVIATIONS**

|  |  |
| --- | --- |
| **Abb** | **Full Term** |
| **ABG** | Arterial Blood Gas |
| **CBC** | Complete Blood Count |
| **CNS** | Central Nervous System |
| **KFT** | Kidney Function Tests |
| **Kg** | Kilogram |
| **LFT** | Liver Function Tests |
| **Mg** | Milligram |
| **mL** | Milliliter |
| **SD** | Standard Deviation |
| **SPSS** | Statistical Package For Social Sciences |

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**Introduction**

Harming addresses quite possibly of the most widely recognized health related crisis experienced in small kids. Harming is a huge and determined reason for grimness and mortality in youngsters. 5% of all inadvertent youth passings are credited to it (WHO, 2008). The extent of poisonous substances engaged with harming is expansive and requires medical care suppliers to have a broad information on signs and side effects of harming and explicit remedial intercessions and counteractants.

There are different courses of openness to poisonous specialists; ingestions represent most openings (Watson et al., 2004). Ingestion was the significant course of openness and represented practically 77% of cases; this is continued in recurrence by dermal, inward breath, and visual courses. Most harming openings in kids more youthful than 6 years old are unexpected, which suggests that these openings are not related with pernicious or self-destructive expectation. Harming in this age bunch generally includes just a single substance that frequently is nontoxic or negligibly poisonous. The sum ingested for the most part is little and youngsters normally present for assessment not long after ingestion (Hoffman and Osterhoudt, 2002). A little gathering of drug specialists and family items can make hazardous impacts when ingested in little amounts. A ''taste or pill can kill,'' is a classification of items with the possibility to cause perilous poisonousness or demise a more youthful in a kid than 2 years old, notwithstanding the ingestion of only a couple of tablets or tastes (Bryant and Vocalist, 2003; Michael and Sztajnkrycer, 2004).

The normal specialists engaged with pediatric openings are beauty care products/individual consideration items, analgesics, family cleaning substances, analgesics, unfamiliar bodies/toys/various, and effective arrangements (Mowry et al., 2013). Substances ingested less much of the time, yet particularly hazardous because of possibly deadly impacts in a single portion to little kids, are hypoglycemic specialists, narcotics, alcohols, antidepressants, theophylline, barbiturates, cocaine, iron, clonidine, and harsh substances (Liebelt and Shannon, 1993; Sachdeva and Stadnyk, 2005). The point of the ongoing review is to assess the frequency and the board of various kinds of harming in the pediatric populace

**Aim of The Study**

The purpose of the present study is to:

* Measure the incidence of poisoning in the pediatric population in Qena University Hospital.
* Determine the effects and outcome of poisoning in the pediatric population in Qena University Hospital.

**Chapter (1)**

**Childhood Poisoning**

The pediatric populace is a very inclined segment for harming given that they require steady oversight and that they are inclined to exploring different avenues regarding materials that they are curious about. That, however they are likewise very inclined to the poisonousness because of their little bodies and youthful catalyst frameworks, which renders them more at risk for serious damage or even passing (Bacha and Tilahun 2015; Lin et al., 2011).

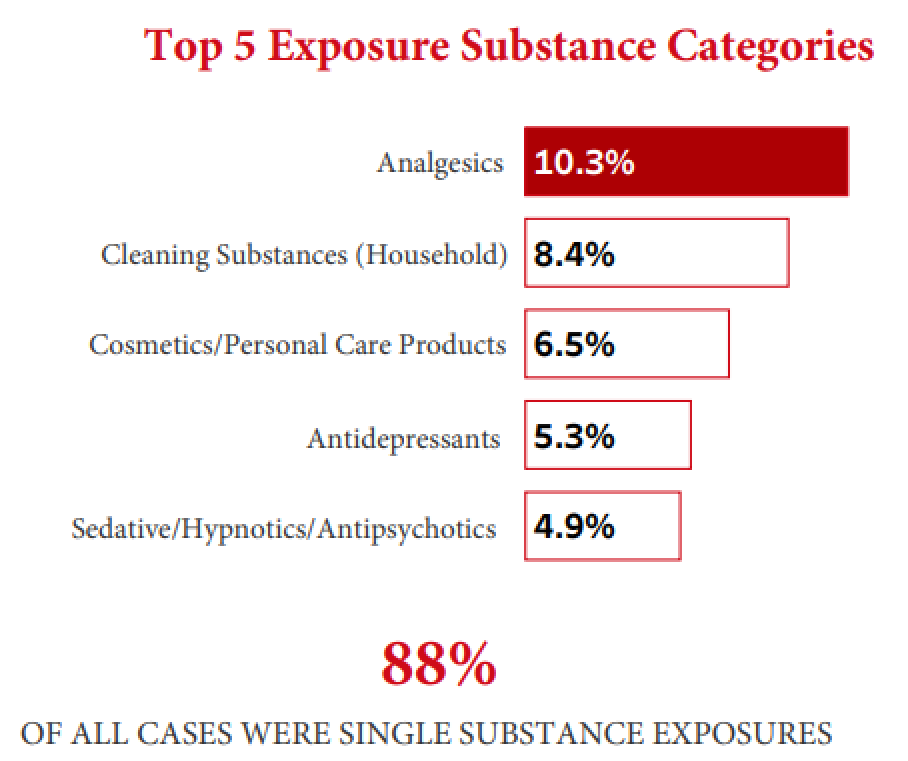
In a few pediatric poisonings, the substances are non-or negligibly poisonous, yet periodically some are seriously poisonous, requiring prompt and explicit clinical mediation to forestall extreme mischief or demise. The crisis division doctor should be know all about the administration of harming and be ready for the normal reasons for pediatric harming as indicated by the latest accessible data (Charm and Ryoo, 2013) (Figure 1, 2).

Indeed, even in similar region, the etiology and socioeconomics of pediatric harming might change over the long haul; subsequently, it is consistently really difficult for ED doctors (Bacha and Tilahun 2015; Lee et al., 2008; Lin et al., 2011; Slam et al., 2014). The most well-known specialists ingested by youngsters more youthful than 6 years old in 2021 (Gummin et al., 2021) are beauty care products and individual consideration items, cleaning substances (family), analgesics, unfamiliar bodies/toys/different, dietary enhancements/herbals/homeopathic, nutrients, skin arrangements, allergy meds, pesticides, plants, gastrointestinal arrangements, cardiovascular medications, expressions/makes/office supplies, electrolytes and minerals, natural balms, antimicrobials, chemicals and chemical bad guys, and deodorizers.

Coming up next is a rundown of reasons for harming in kids:

1 - Hydrocarbons: Utilized for cooking, lighting, and warming are the principal family administrations given by lamp oil, despite the fact that there are lamp oil coolers and different machines in certain areas. Lamp oil warming isn't broad in calm or high country areas of non-industrial nations, basically on account of cost. Goal pneumonitis is the most widely recognized appearance of lamp fuel ingestion because of its low consistency, high instability, and low surface strain (Kumar et al., 2019; Lam et al., 2012).

2 - Organophosphorus compounds: Parent's occupation (horticultural ordinarily) and organophosphate deposits in home floor covering dust are the two familiar methods of harming. A few organophosphorus mixtures like organophosphate pesticides and trialkylphosphates are thought to hinder cholinesterase exercises, to influence endocrine frameworks or to perhaps be cancer-causing (Head servant Dawson et al., 2016; Yoshida et al., 2022).



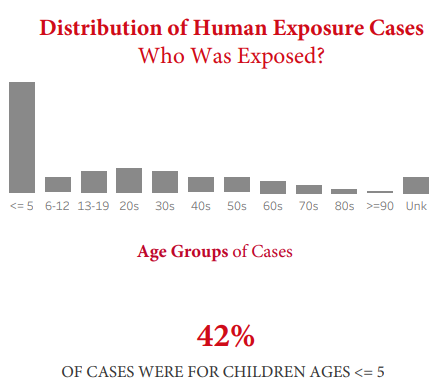


Figure 2. Dissemination of Human Openness to Harming in 2020 (2020 Yearly Report of the American Relationship of Toxic substance Control Focuses' Public Toxin Information Framework, 2020).

3 - Destructive ingestion: Salt is the most widely recognized reason for acidic ingestion in the pediatric populace. They are for the most part of the accompanying kinds:

Sodium hydroxide (acidic pop), Potassium hydroxide (Channel cleaners, fades, stove cleaners, some non-phosphate cleansers, modern paint strippers), Sodium hypochlorite, Calcium hydroxide (Some family dyes).

Essentially in fluid dishwasher items (Christesen, 1995).

Antacid Ingestion:

Models: Smelling salts, Baking pop - sodium bicarbonate, Washing pop - sodium carbonate, Cleanser.

Can cause three modalities of injury: Aviation route and facial consumes, Esophageal or gastrointestinal consumes, or Sprinkle wounds (Christesen, 1995; Johlubl and Matthew, 2009).

Acidic Ingestion:

Models: Vinegar (powerless acidic corrosive), Lemon juice (citrus extract, some ascorbic corrosive), Any citrus organic product (citrus extract, some ascorbic corrosive), Sulfuric acid (sulfuric corrosive), Anti-inflamatory medicine (acetylsalicylic corrosive), Muriatic corrosive (hydrochloric corrosive).

Is the second most normal reason for burning ingestion after salt (Refaeey et al., 2016).

**Chapter (2)**

**Pediatric Drug Poisoning**

The substances most often associated with pediatric (≤5 year sold) openings are beauty care products, individual consideration items, family cleaning items, analgesics, unfamiliar bodies, toys, incidental, and dietary enhancements/herbals/homeopathic cures (Gummin et al., 2021). Ingestions of over-the-counter hack and cold medications among the populace small kids declined in frequency after the names of these items were updated to caution against use in youngsters more youthful than four years (Hampton et al., 2016; Mazer-Amirshahi et al., 2013).

Youngster self-ingestion of drug specialists expanded somewhere in the range of 2004 and 2010 with the rising accessibility of professionally prescribed prescriptions however diminished somewhere in the range of 2010 and 2013 (Bond et al., 2012; Burghardt et al. 2013; Lovegrove et al., 2015). Somewhere in the range of 2007 and 2011, it is assessed that almost 9500 youngsters more youthful than six years were hospitalized every year for solo ingestion of professionally prescribed meds in the US, with narcotics, particularly buprenorphine, being the most well-known guilty party (Lovegrove et al., 2014).

Among youngsters with unaided drug openness, narcotics and benzodiazepines were the most ordinarily ingested solution solids; acetaminophen, hack and cold cures, ibuprofen, and diphenhydramine were the most regularly ingested fluid non-prescription meds (Lovegrove et al., 2015). Kid self-openness to illegal medications (eg, weed, methamphetamines) and electronic cigarettes additionally gives off an impression of being expanding (Graham et al., 2020).

The classes of substances most often engaged with fatalities in kids ≤5 years old during 2020 included analgesics, exhaust/gases/fumes (fundamentally carbon monoxide), cardiovascular medications, batteries, and synthetic compounds (Gummin et al., 2021)

The "peril factor" is an action that was concocted to impartially survey the harming danger of different items in view of the possible intense harmfulness of individual fixings and the recurrence and degree of wounds following genuine openings (Litovitz et al., 1992). It was inferred through examination of more than 3.8 million openings that were accounted for to the AAPCC from 1985 through 1989 among kids more youthful than six years. In this examination, huge dangers were restricted to a couple of items. These included:

• Iron harmfulness

• Antidepressants (Tricyclic antidepressants)

• Cardiovascular meds (Digitalis, Beta blockers, and Calcium channel blockers)

• Methyl salicylate

Extra unambiguous items have been distinguished as causing extreme side effects or demise in kids with ingestion of just a limited quantity (Henry and Harris, 2006; Michael and Sztajnkrycer, 2004). These incorporated the accompanying:

• Sulfonylureas

• Calcium channel blockers

• Harmful alcohols (Ethanol, Methanol, Ethylene glycol, and Isopropyl liquor)

• Clonidine

• Narcotics

• Fluid nicotine

Deadly prescriptions to youngsters can be isolated by dosages (Table 1).

Table 1. Medications and toxins potentially fatal to toddler in one or two doses (**Bassett et al., 2014; Baumgartner et al., 2020; Henry, 2006; Koren, 1993; Liebelt & Shannon, 1993; Michael & Sztajnkrycer, 2004; Osterhoudt, 2000**)

|  |  |  |
| --- | --- | --- |
| Drug | Minimum fatal dose | Major effects |
| Benzocaine | <20 mg/kg | Methemoglobinemia, seizures |
| Beta blockers | Unclear | Seizures, hypoglycemia, bradycardia, hypotension |
| Calcium antagonists | <40 mg/kg | Bradycardia, hypotension |
| Camphor | Approximately 50 mg/kg | Seizures, CNS depression, respiratory depression |
| Chloroquine | <30 mg/kg | Seizures, arrhythmias |
| Clonidine | Unclear | Bradycardia, hypotension, CNS depression |
| Diphenoxylate | 1.2 mg/kg | CNS & respiratory depression |
| Imidazoline-derived sympathomimetics (eg, Visine, Afrin) | Unclear | Lethargy, miosis, hypotension, bradycardia, respiratory depression, shock |
| Lindane | 6 mg/kg | Seizures, CNS depression |
| Methadone | 5 mg/kg | CNS & respiratory depression |
| Methyl salicylate | Approximately 200 mg/kg | Seizures, acidosis, cardiovascular collapse |
| Nicotine (liquid) | 1 to 3 mg/kg | Seizures, coma, respiratory arrest, cardiac arrest |
| Opioids | Unknown | Miosis, CNS depression, respiratory depression |
| Phenothiazines | Approximately 20 mg/kg | Seizures, arrhythmias, CNS depression |
| Phenylpropanolamine | Unclear | Arrhythmia, intracranial bleed |
| Quinidine | Approximately 50 mg/kg | Seizures, arrhythmia, CNS depression |
| Quinine | Approximately 80 mg/kg | Seizures, arrhythmias, retinal injury |
| Sulfonylureas | <1 mg/kg | Hypoglycemia |
| Theophylline | 50 mg/kg | Seizures, arrhythmias |
| Tricyclic antidepressants | Approximately 15 mg/kg | Seizures, arrhythmias, hypotension |
| Toxic alcohols | 0.3 mL/kg | CNS depression |
| Vilazodone | 10 mg (1 pill) | Seizures, coma, tachycardia |

**Chapter (3)**

**Pediatric Pharmacology**

**Pharmacokinetics**

Contrasts in life structures and physiology influence organ volumes and blood stream which thus influence the pharmacokinetics of medications and compound substances from one person to the next (Bois and Brochot, 2016). Pharmacology is worried about concentrating on the impacts of medications in the body, and pharmacokinetics concentrates on the impacts endured by the medication when in touch with the body (Pantaleão et al., 2022).

I. Retention:

Gastrointestinal retention is impacted by the type of the medication, level of ionization, parcel coefficient, and patient factors, for example, gastrointestinal blood stream, motility, and the presence or nonappearance of food or other meddling substances (Bois and Brochot, 2016).

Oral ingestion is the most well-known course of GI assimilation. Gases, unstable fluids, and sprayers might be assimilated through the lungs. Drug retention through the skin relies upon the attributes of the medication and on the state of the skin. The intravenous course of organization brings the medication straightforwardly into the venous circulatory system. Intramuscular and subcutaneous organization includes ingestion from the infusion site into the dissemination by inactive dispersion (Pantaleão et al., 2022).

The organization of digestive liquids and the penetrability of the stomach shift during youth. Retention of orally controlled drugs is impacted by changes in gastric pH which diminishes during earliest stages to arrive at grown-up values by two years old. Babies are at higher gamble of poisonousness through skin ingestion because of a bigger surface region to volume proportion and they likewise retain to a greater degree a medication across skin because of their more slender layer corneum. This makes sense of why babies have an expanded gamble of methaemoglobinaemia with effective sedatives (Kearns et al., 2003).

II. Dispersion:

After ingestion, a medication is circulated to different body compartments as per its physiochemical properties, like sub-atomic size, ionization steady, and relative watery and lipid dissolvability (Mangoni and Jackson, 2004).

The volume of appropriation changes over the course of growing up as stores of fat and water change. Babies have a higher level of extracellular water, and stores of muscle versus fat increment over the course of growing up. Changes in volume of conveyance can modify the medication's half-life, requiring change of the dosing span, as seen with digoxin. Newborn children have lower centralizations of circling plasma proteins lessening protein restricting. This outcomes in higher dissemination and lower top centralizations of protein-bound medications, for example, cefazolin (Allegaert et al., 2014).

III. Digestion:

Drug-using P450s are communicated to work with the digestion and disposal of many mixtures (Panel on Injury and Toxin Avoidance, 1997).

The digestion of medications is the most intricate distinction among grown-ups and youngsters. Cytochrome P450 (CYP) proteins are dynamic in the baby. Protein movement starts to increment during the later phases of pregnancy with various paces of individual catalyst advancement found in babies who are conceived preterm. The example of dynamic catalysts changes over the initial not many long periods of life to reach or surpass grown-up levels at something like two years old. While most compounds expansion in movement over the initial not many long periods of life, whatever as CYP3A7 are supplanted by different proteins, for this situation CYP3A4 (Kearns et al., 2003).

IV. Disposal

After ingestion and circulation are finished, the end cycle starts right away, by eliminating of a compound from the body through freedom organs like the liver, kidneys, and lungs. This interaction is impacted by the significant organ frameworks (cardiovascular, lungs, renal, hepatic). End can be achieved by biotransformation to at least one metabolites, or by discharge from the assortment of unaltered xenobiotic. Discharge can happen through the kidneys, lungs, GI plot, and body emissions (sweat, tears, milk) (Hoffman and Osterhoudt, 2002).

Glomerular filtration rates are fundamentally low in the pediatric populace however they increment as the individual ages and they arrive at grown-up levels by around two years old (Skinner, 2008).

**Chapter (4)**

**Risk Factors of Poisoning Among Children**

Coming up next are normal gamble factors for harming in the pediatric populace:

- Age: The more youthful, the more pervasive the frequency (Figure 2).

- Sex: Harming is more normal in young men (Gummin et al., 2021).

- Formative variables:

o The typical formative movement of small kids, including investigation of their current circumstance, places them in danger of harming (Council on Injury and Toxic substance Avoidance, 1997).

o Young youngsters don't yet grasp risk or the idea of harming, so regardless of coming up short on the longing or the desire to ingest a substance, they are very inclined to harming.

o Normal interest and longing for oral excitement might make youngsters place new articles straightforwardly into the mouth for tasting or gulping

o Well-meaning pre-schoolers might attempt to "help" by utilizing poisonous cleaning items or by endeavoring to self-direct drug (Rodriguez-Antona and Ingelman-Sundberg, 2006)

o Peer tension and want to adjust likewise add to this issue. Likewise, teens (more normally females than guys) may accept an excess of prescription as a self destruction endeavor or signal (Award Alfieri et al., 2013)

- Natural variables:

o Most homes contain various possibly poisonous substances, especially in the kitchen (eg, dish washer cleanser parcels/units), restrooms, pantry (eg, clothing cleanser cases), and carport.

o Products or prescriptions that are utilized or taken much of the time might be put away appropriately, however during use might be left immediately inside a youngster's compass (Spiller et al., 2019).

o Look-alikes likewise represent an issue for little kids. A few drugs seem to be indistinguishable from candy.

o The accessibility of meds, drugs, or different substances of maltreatment at the everyday schedule might put weak youngsters at additional gamble (Award Alfieri et al., 2013).

**Chapter (5)**

**Prevention of Pediatric Poisoning**

Table 2. Instructions for Prevention of Poisoning in Different Quarters of the Household (**Wang et al., 2017**)

|  |  |
| --- | --- |
| Area | Prevention approach |
| Kitchen | Store detergents, oven cleaners, and drain cleaners on higher shelves. |
| Store safe items in cabinets and drawers that are within the child's reach. |
| Install child-guard latches on cabinet doors and drawers that contain dangerous items. |
| Avoid storage of chemicals in the refrigerator. |
| Do not use insecticides, traps, or baits in locations to which children have access. |
| Bathroom | Store medications out of sight and out of reach, preferably in a locked cabinet, box, or closet. |
| Store perfumes, colognes, cosmetics, and hair care products out of sight and out of reach (eg, on upper shelves or in locked containers). |
| Do not use insecticides, traps, or baits in locations to which children have access. |
| Bedrooms | Store medications and contraceptives out of sight and out of reach, preferably in a locked cabinet, box, or closet. |
| Store perfumes, colognes, cosmetics, and hair care products out of sight and out of reach (eg, on upper shelves or in locked containers). |
| Living and dining rooms | Remove toxic plants or keep them out of reach. |
| Keep tobacco products, lighters, and matches out of sight and out of reach. This includes electronic cigarettes and nicotine refill cartridges. |
| Keep alcohol in a locked cabinet; dispose of partially consumed drinks. |
| Laundry | Keep cleaning supplies out of reach. |
| Garage/basement | Store paints, solvents, insecticides, herbicides, and chemicals for use in hobbies in locked cabinets; always store these materials in the original containers. |
| Do not use insecticides, traps, or baits in locations to which children have access.  Install a carbon monoxide detector. |
| Outdoor areas | Identify toxic plants, berries, and bulbs. |
| Do not leave unplanted bulbs in areas to which children have access. |
| Other areas | Check and secure (with tape) battery compartments on household products. |
| Store batteries out of the reach and sight of children. |
| Do not allow children to play with batteries. |

Intercessions are normally founded on risk factors that are amiable to change and that are focused on at high-risk populaces.

Decrease of poisonousness

Eliminating a noxious substance successfully may not be imaginable all the time. An elective methodology is to bring down the level of the poisonousness of the culpable specialist or to kill it here and there. One approach to doing this is to decrease the grouping of the dynamic fixing. A strategy of selling acidic corrosive just in weakened structure prompted a fall in the pace of young life poisonings. Beforehand, concentrated vinegar had been effectively accessible, and had been answerable for a few harming passings (Litovitz et al., 2010). One more instance of bringing down harmfulness is the reformulation of methylated spirits as chiefly ethyl liquor, instead of the more poisonous methanol. Along these lines, less harmful pesticides might be utilized to forestall instances of intense pesticide harming (Caribbean The study of disease transmission Center, 1996). Nonetheless, more secure pesticides are for the most part more costly.

Lessening the harmful impacts of ingestible toxic substances by adding a counteractant to the substance has additionally been endeavored yet has not been ended up being powerful. In the Assembled Realm, paracetamol was made with added methionine, a counteractant to paracetamol glut (Goldman and Tran, 2002). This item, however, was removed in light of the fact that it was more costly than the paracetamol-just details that stayed available. Also, the utilization of oral methionine was addressed, as the substance was related with unfavorably susceptible responses.

More secure bundling and stockpiling

The outcome in decreasing accidental kid harming through more secure bundling and stockpiling throughout the course of recent many years has depended on:

• Training of guardians and parental figures - about the dangers and how to safeguard against them;

• Regulation - to forestall inadmissible holders, (for example, are regularly used to store food or beverages) being utilized to store unsafe substances; and to make bundling around destructive substances impervious to altering by kids.

Kid safe bundling is quite possibly of the best-reported outcome in forestalling the unexpected harming of youngsters (Jones et al., 1997). In Britain and Ridges, unexpected harming passings of kids matured younger than 10 years fell consistently from 151 for each 100 000 of every 1968 to 23 for every 100 000 out of 2000 (US

Buyer Item Wellbeing Commission, 2023).

Safe capacity of toxic substances in the home requires a protected place where a kid can't beat hindrances of locks or level. In spite of the fact that kids will devise complex procedures to get hold of prescriptions, doing so takes time. The fundamental explanation, consequently, for putting away toxins far away from youngsters is that this is a postponing procedure - as to be sure is kid safe bundling.

Kid safe bundling has been demonstrated powerful for prescriptions, energizes, family synthetics and pesticides. The expense for producers and merchants might be a snag, yet this is probably going to be offset by the huge investment funds from treating kids who have been inadvertently harmed. The expenses for families might be balanced by government sponsorships, like the free dissemination of such compartments (Flanagan et al., 2005). Kid safe bundling ought to be utilized on all medications sold over the counter, to assist with forestalling youngsters consuming these possibly deadly items (Azizi et al., 1993).

Eliminating poisonous specialists

The best method for forestalling youngsters coming into contact with a toxin is to eliminate the actual harm. An illustration of this is the Manchineel tree. The product of this tree seems to be an eatable green apple however the natural product, bark and sap are poisonous. Poisonings from the Manchineel tree, particularly among youngsters, used to be normal in the Caribbean, notwithstanding cautioning signs and instructive missions. At last, the trees were taken out by the specialists from the ocean side regions where they were pervasive and supplanted by coco plum trees, with a resulting fall in the quantity of harming cases.

Then again, harmful specialists might be supplanted by different substances with a lower poisonousness. As specific illustrations, the accompanying exceptionally harmful substances have been to a great extent supplanted in many spots by less poisonous substances making a comparable planned difference (Flanagan et al., 2005):

• Barbiturates (a class of narcotic mesmerizing medications) by benzodiazepines;

• Cresol (an additive) by chlorocresol;

• Ibuprofen by paracetamol;

• Poisonous mitigating drugs with less harmful non-steroidal calming drugs.

Some of the time the change from harmful to less poisonous substances happens as a symptom of monetary turn of events. The frequency of paraffin ingestion, for example, has been found to fall when nations move from utilizing individual fuel sources, like packaged paraffin, to more secure choices, for example, power and petroleum gas provided by open utilities (O'Donnell et al., 1998).

**Chapter (6)**

**Management of Pediatric Poisoning**

1 - SUPPORTIVE MANAGEMENT (ABCD)

Introductory administration ought to zero in on evaluation of ABCD (Aviation route, Breathing, and Course, and Handicap). Despondency of the focal sensory system is a typical side effect. This might prompt aviation route split the difference, respiratory disappointment, or desire. Subtleties can be tracked down in Figure 3.

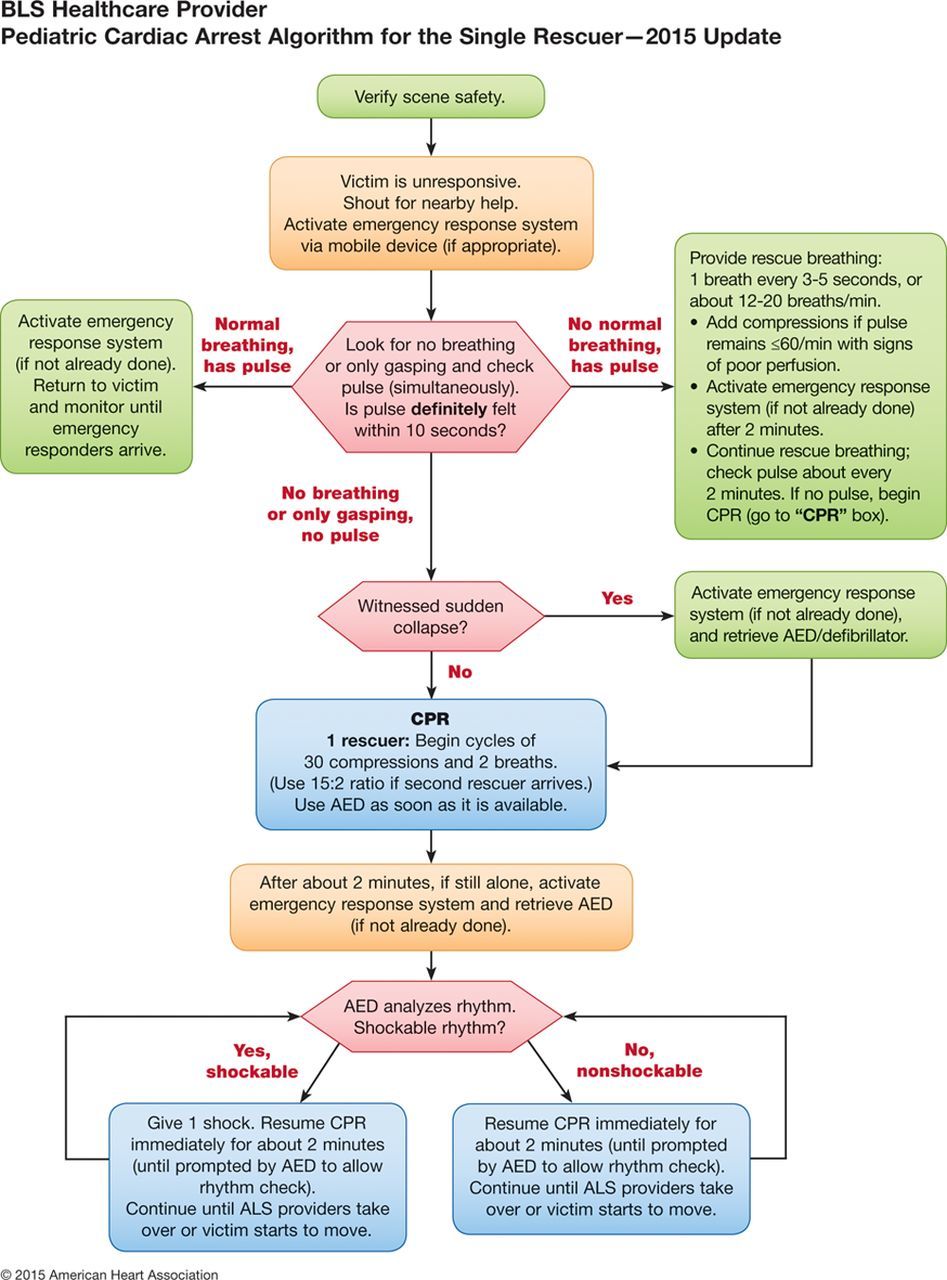


Figure 3. BLS Medical services Supplier Pediatric Heart failure Calculation for the Single Hero — 2015 Update (Atkins et al., 2015).

2 - Sterilization

Sterilization is the evacuation or decrease of unsafe substances from the casualty's body. The objective of sterilization is to guarantee that the harmful substance, whether synthetic, natural, or radiological, is as of now not in that frame of mind with the patient. This forestalls further ingestion by the patient and will diminish the chance of move of the poison to medical services laborers (Houston and Hendrickson, 2005).

Techniques for cleaning incorporate the accompanying:

A) Emesis:

Generally performed assuming time since harming is short of what one hour yet is contraindicated in the accompanying sorts of harming:

i. Corrosives as acids and antacid because of hazard of hole.

ii. Convulsants as may cause fits.

iii. Hydrocarbons as may cause hazard of inward breath.

iv. Foaming specialists.

v. Sharp objects

vi. Patients in trance like state or effectively writhing to stay away from hazard of yearning pneumonia.

vii. Decreased or missing gag reflex.

viii. Severe cardiovascular or respiratory illness (Albertson et al., 2011).

B) Gastric Lavage:

Generally finished in the event that time since harming is under two hours however should be possible later in harms that structure solidifications as salicylates or iron tablets or toxins that are killed in the GIT as narcotics and liquor. It is contraindicated in destructive harming because of hazard of hole of throat or stomach (Greene et al., 2008).

C) Diuresis:

• Through osmotic diuresis utilizing Mannitol or by modification of pee pH:

• Frail acidic medications are wiped out by alkalinization of the pee.

• Frail salt medications are dispensed with by fermentation of the pee.

D) Dialysis:

Permits blood to be separated of toxins which have the accompanying properties:

i. Small volume of conveyance.

ii. Low protein restricting.

iii. Small atomic weight (Winchester, 2002).

3 - Remedy

Coming up next is a rundown of normal remedys for normal poisons in pediatrics (Table 3).

Table 3. Remedys for Normal Poisons (Hui et al., 2021).

|  |  |  |
| --- | --- | --- |
| Toxin | Antidote | Dose |
| B-Blocker | Glucagon | * 1. mg/kg bolus   0.07 mg/kg/hour infusion |
| Digoxin | Digibind | 1 vial (38 mg) binds 0.5 mg digoxin |
| Ethylene glycol/methanol | Ethanol | 10 ml kg loading.  1.2 ml/kg maintenance. |
| Cyanide | Hydroxycobalamin | Mg/kg |
| Organophosphate | Atropine | 0.05mg/kg, double dose every 5 minutes |
| Iron | Desferrioxamine | 10:15mg/kg/h till acidosis resolves |
| Heavy metals | EDTA | 20:30 mg/kg/hour |
| Acetaminophen | N-Acetylcysteine | 150 mg/kg over 15 hours  50 mg/kg over 4 hours  100 mg/kg over 16 hours |
| Opioids | Naloxone | 0.1mg/kg max 2 mg |
| Tricyclic Antidepressants | Sodium bicarbonate | 1 mEq/kg |
| Warfarin | Vitamin K | 1:5 mg/6:8 hours |

4 - Suggestive TREATMENT/The executives OF Intricacies

Diuresis, retching, and the runs may all add to significant lack of hydration and shock. Forceful liquid revival, directed by intrusive checking, might be important. Hypotension, inert to sufficient liquid substitution, requires treatment with inotropes. Dopamine and dobutamine are the specialists generally normally utilized. The inotropic impact of glucagon has been utilized in the administration of β blocker and tricyclic stimulant actuated hypotension (Nuutinen et al., 1994).

Metabolic acidosis is habitually experienced. As a rule, this is gentle and doesn't need explicit treatment. At times, the revision of a gentle metabolic acidosis might diminish poison freedom (Nuutinen et al., 1994).

Hepatic and renal capability ought to be checked intently. Pee tests ought to be checked routinely for blood, hemoglobin, protein, glucose, and myoglobin.

Hypoglycemia ought to be recognized quickly and rectified utilizing intravenous boluses (5 ml/kg) of 10% dextrose.

Seizures can generally be treated with benzodiazepines.

Youngsters creating side effects after ingestion, other than maybe gentle sickness, regurgitating, or looseness of the bowels, require clinic affirmation. For most toxins, treatment is strong.

Youngsters with sickness and retching may require intravenous liquids. Treatment with antiemetic drugs is best kept away from (Gaudreault et al., 1983)

The examination and treatment of acidic ingestion in youngsters is dubious. Antacids will quite often cause more harm than acids, while fluids cause a greater number of scars than powders. Items that can become caught in the throat cause the most harm, for instance, batteries, Clinitest, or dishwasher tablets.

The result for most kids following destructive ingestion is great. Shallow esophageal consumes happen in 20% of cases, further consumes are seen in 5%, and injury development in 1-3% (Nuutinen et al., 1994). Endeavors at balance of corrosives, or gastric disinfecting, are best kept away from. The utility of early upper gastrointestinal endoscopy in suggestive youngsters, trailed by steroid treatment assuming esophageal consumes are recognized, has been raised doubt about. Early signs and side effects don't foresee the presence of esophageal consumes, and Anderson et al found no proof that steroid treatment further developed result (Anderson et al., 1990)

Kids ought to be overseen apparently. Specific consideration is required over liquid equilibrium and respiratory capability. Slobbering and dysphagia persevering past 12-24 hours are great indicators of esophageal scar arrangement and ought to incite upper gastrointestinal endoscopy (Nuutinen et al., 1994)

**Patients and Methods**

* **Design & Setting**:

This was a review study directed at South Valley College Medical clinic, Pediatric division and Pediatric Emergency unit January 2020 and December of 2021.

• Patient' Determination Standards:

Our review included 46 patients. Consideration measures included patients confessed to the pediatric division with side effects of harming in view of history taking, actual assessment, and lab studies, who were able to partake in this exploration. Rejection rules included patients with gastrointestinal issues, neurological issues, constant kidney issues, or cardiovascular issues.

• Techniques:

Every one of the patients had their set of experiences taken, including:

o Age

o Sex

o Full history including:

 History of present disease

• Kind of poisonous specialist liable for harming.

• Defer time among harming and confirmation.

• Course of openness: Oral, inward breath, infusion, dermal, sting or chomp.

• Way of harming: Whether murderous, self-destructive, inadvertent, habit (go too far) or remedial blunder.

• Presence or nonappearance of pre-clinic treatment got by the patients.

• Introducing side effects previously and on appearance to emergency clinic as:

o Symptoms of gastrointestinal plot (GIT): Retching, loose bowels, blockage, hematemesis, melena, dysphagia, stomach torment,… .and so forth

o Symptoms of cardiovascular framework (CVS): Chest torment, dyspnea, palpitation… .and so on.

o Symptoms of respiratory framework: Hack, expectoration, hemoptysis, dyspnea… … and so on

o Symptoms of sensory system: Discombobulation, dizziness, migraine, shivering, deadness… and so forth.

o Symptoms of genitourinary side effects: Polyuria, oliguria, hematuria, incontinence, maintenance… .and so on.

 Previous history:

• Mental infections: Schizophrenia, significant wretchedness or bipolar hyper issue.

• Clinical infections: Epilepsy, diabetes mellitus, respiratory illness, coronary illness, liver sickness or renal illness.

• Any past usable history.

• Assessment of the patients was done at the hour of show to the medical clinic and intermittently for follow up as indicated by the kind and seriousness of harming.

 General assessment:

• Indispensable information: They are the fundamental wellbeing status pointers and address a standard part of any understanding evaluation. They incorporate the accompanying goal estimates which empower appraisal of the level at which an individual is working.

They incorporated the accompanying:

|  |  |
| --- | --- |
| Normal Heart Rate by Age | |
| < 1 year | 110:160 |
| 2:5 years | 95:140 |
| 5:12 years | 80:120 |
| Over 12 years | 60:100 |

* + - * Blood pressure

|  |  |
| --- | --- |
| Normal Blood Pressure by Age | |
| 0:2 years | 110/65 |
| 3:6 years | 120/70 |
| 7:10 years | 130/75 |
| 11:15 years | 140/80 |
| Over 15 years | 140/90 |

* + - * Respiratory rate

|  |  |
| --- | --- |
| Normal Respiratory Rate by Age | |
| < 1 year | 30:60 |
| 1:2 years | 24:40 |
| 2:5 years | 22:34 |
| 6:12 years | 18:30 |
| Over 12 years | 12:20 |

o Systemic assessment:

• Gastrointestinal assessment: Remembering presence of trademark smell for mouth, buccopharyngeal disintegrations, dysphagia, sickness, retching, the runs, stomach inflexibility, hematemesis, melena, blockage, ileus or organomegaly.

• Cardiovascular assessment: Including presence of unusual or intangible heartbeat, lessened, overstated or strange heart sounds, mumbles or heart failure.

• Respiratory framework assessment: Including presence of hack, discharge, hemoptysis, apnea, tachypnea, bradypnea, respiratory misery, stridor, unusual example of breathing, decreased air passage or presence of extrinsic sounds as wheezes and crepitations.

• Neurological assessment: The degree of awareness of patients under review was evaluated by Reed's arrangement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Stage | 0 | 1 | 2 | 3 | 4 |
| Confusion | Asleep | Comatose | | | |
| Pain | Arousable | Withdraw | None | | |
| Reflex | Intact | | | Absent | |
| Respiration | Normal | | | | Cyanosis |
| Circulation | Normal | | | | Shock |

o Genitourinary assessment: Including polyuria, hematuria, oliguria, anuria, incontinence, urinary maintenance or pee staining

They additionally went through research center examinations as:

• Arbitrary blood glucose level: Estimated by Colorimetric strategy utilizing glucose oxidase to catalyze oxidation of glucose to gluconic corrosive by Spectrophotomer at frequency 505 nm. Reference Reach: 72-144 mg/dl.

• Serum electrolytes (sodium and potassium): Standard arrangements were infused in Blood Gas Analyzer and afterward serum tests were infused in the set to decide the serum sodium and potassium levels. Guideline: particle specific cathode method. Reference Reach: Serum sodium: 135-150 mEq/L. Serum potassium: 3.5-5.0 mEq/L.

• Kidney capability profile (serum urea and creatinine): by Beckman Coulter AU480 Clinical Science Framework. Reference Reach: Serum urea: 10 - 50 mg/dl. Serum creatinine: 0.2-1.2 mg/dl

• Liver capability test (Alanine Aminotransferase and Aspartate Aminotransferase): It was finished by utilizing NADH Active UV strategy. Reference Reach: AST: 0-40 IU/L. ALT: 0-45 IU/L

• Blood vessel Blood Gas Investigation (ABG): They were broke down for evaluation of the accompanying (pH, PaCO2, PaO2, SaO2 and HCO3). Rule: It is a particle specific cathode strategy.

Reference Reaches:

o pH: 7.35-7.45.

o PaO2: 80-100 mmHg.

o PaCO2: 35-45 mmHg.

o SaO2: >95%.

o HCO3: 22-28 mEq/L.

• Explicit toxicological research center examinations: They were performed by the patient's requirements for each kind of toxin, for example, estimation of pseudocholinestrase compound (PChE) level utilizing active colorimetric strategy. Reference Reach: PChE level: 4000-11000 IU/l.

o Qualitative drug separating pee was finished utilizing radio immunoassay by drug analyzer thermofisher CDx 90.

• Electrocardiography: An ECG was recorded and dissected - at whatever point required.

• CT Cerebrum: CT mind was done - at whatever point required - after quiet's confirmation.

• Treatment measures: Different treatment measures applied to every patient including:

• Crisis treatment: Endotracheal intubation, oxygen organization and mechanical ventilation,

• Strong treatment: Intravenous liquids, H2 blockers, anti-toxins, antiemetic, steroids, dopamine and different vasopressors treatment.

• Purification measures: Emesis, lavage and actuated charcoal.

• Improved end strategies: Various portion initiated charcoal, alkalinization of pee and dialysis either hemodialysis or peritoneal dialysis.

• Antitoxin treatment.

• Result (as per clinic attitude) was additionally recorded:

• Span of clinic stay.

• Reasons for admission to the ICU.

• Result: Complete recuperation - Recuperation with inconvenience - Released against clinical exhortation (AMA) - Move to another division - Mortality - Break.

• Toward the finish of the review, the recorded clinical information of the patients were organized for factual review.

The accompanying results were gathered from the subjects; age, sex, home, control of the parent, the material of harming, how much the material of harming, the time delay until looking for clinical help, the method of show, emergency treatment estimates that were attempted, explicit enemy of harming measures that were embraced, examinations that were mentioned, and the ultimate result (improvement or deteriorating of the condition up to death).

The essential (primary) result was to survey the rate of harming with various substances among kids in the period from January 2020 to December 2021. Auxiliary results included assessing the board of those patients and deciding the result of harming among those kids.

For factual examination, information was checked, entered and broke down involving the Measurable Bundle for Sociologies (SPSS) rendition 23 for information handling. The accompanying factual techniques were utilized for investigation of consequences of the current review:

Information was communicated as number and rate for subjective factors and mean + standard deviation (SD) for quantitative one.

Information was summed up utilizing the number juggling mean ( ) as a normal portraying the focal propensity of perceptions:

Where:

Σ = Amount of.

Х = Individual information.

n = Number of individual information.

Information was likewise summed up utilizing the standard deviation (SD) as a proportion of scattering of the outcomes around the mean:

The correlation was finished utilizing:

I - The understudy "t" test for correlation of method for two autonomous gatherings:

Where:

1, 2 = the mean of the first and second gatherings individually.

n1, n2 = number of the first and second gatherings separately.

SD1, SD2 = the standard deviation of the first and second gatherings individually.

The aftereffects of the "t" esteem were then actually looked at utilizing understudy "t" table at level of opportunity (df = n1 +n2 - 2) to figure out the degree of importance (p-esteem).

II - Mann Whitney test was utilized to compute contrast between quantitative factors in not regularly conveyed information in two gatherings.

III - Chi-square test (X2) was utilized to track down the relationship among line and section factors.

Where:

O = noticed esteem

E = anticipated esteem = (line absolute x section all out)/(fantastic aggregate)

df = level of opportunity.

r = column

c = segment

IV - Z-test for rate: to think about level of result between the two gatherings.

V - Chances proportion (OR): Looks at the chances or the gamble that a sickness will happen among people who have a specific trademark or who have been communicated to a gamble element to the Chances that the illness will happen in people who miss the mark on trademark or have not been uncovered.

The t measurement to test whether the means are different can be determined as follows:

Level of importance: For all previously mentioned factual tests done, the limit of importance was fixed at 5% level (P-esteem).

- P worth of > 0.05 shows non-huge outcomes.

- P worth of < 0.05 demonstrates huge outcomes.

The more modest the P esteem got the more huge are the outcomes.

**Results**

The review directed at Qena College Medical clinic, Egypt, from January 2020 to December 2021, intended to reflectively dissect pediatric harming cases confessed to the clinic. The review included 100 patients who met the incorporation models for harming in view of history, clinical assessment, and research facility examinations (Table: Study Setting). Patients with gastrointestinal and neurological issues, ongoing kidney illnesses, and heart issues were avoided from the review (Table: Review Subjects).

The segment information uncovered that the mean age of the patients was 3.78 years, with newborn children (39%) being the biggest age bunch (Table: Segment Information). Most of patients were females (67%) and lived in metropolitan regions (59%) (Table: Segment Information).

The kinds of toxins were ordered into prescriptions/drugs (28%), harmful/noxious substances (27%), and compound substances (45%) (Table: Sort of Toxin and Portion).

The most widely recognized introductions in different body frameworks included hypotension, respiratory misery, and spewing (Table: Show). The administration of harming cases included ABC treatment, sterilization through gastric wash, and the organization of different cures, anti-infection agents, and other indicative medicines in view of the particular toxin type (Table: The board).

Research center discoveries showed that the patients by and large had ordinary qualities for essential signs, blood boundaries, ABG, kidney and liver capability, and electrolyte estimations (Table: CBC, Table: ABG, Table: Kidney and Liver Capability, Table: Electrolyte Estimations).

Around 44% of the patients required ICU affirmation, and the typical ICU stay was 2.14 days (Table: Destiny and Result Information). The typical time till release was 2.63 days, with striking varieties saw among individual cases (Table: Destiny and Result Information).

The concentrate likewise investigated the relationships between's various factors, like age, sex, important bodily functions, blood boundaries, and the sort of toxin with ICU confirmation and time till release (Table: Connection).

Table (1): Demographic data of included subjects

|  |  |  |
| --- | --- | --- |
| Parameter | Value ( N = 100) | |
| Age (Years), Mean ± SD | 3.78 ± 4.49 | |
| Age category | Number | Percentage |
| * Infant (<1yr) | 39 | 39 |
| * Toddler(1-3 years) | 32 | 32 |
| * Preschoolers (3-5 years) | 12 | 12 |
| * School-age children (6-12 years) | 7 | 7 |
| * Adolescents (12+ years) | 10 | 10 |
| Sex |  |  |
| * Male | 33 | 33 |
| * Female | 67 | 67 |
| Weight (Kg), Mean ± SD | 15.78 ± 7.24 | |
| Median (Range) | 15.25 (6.9-33.3) | |
| Residence | Number | Percentage |
| * Urban | 59 | 59 |
| * Rural | 41 | 41 |

Table (1) showed that: The mean age of the patients was 3.78 years. Infants accounted for 39% of the sample, followed by toddlers (32%), preschoolers (12%), school-age children (7%), and adolescents (10%). Regarding Gender distribution, 67% of the patients were female, while males represented 33% of the sample. The mean weight was 15.78 kg, with a range of 6.9 kg to 33.3 kg. The majority of the patients resided in urban areas (59%), while 41% lived in rural areas.

Figure (1): Age category distribution among included subjects

Figure (2): Sex distribution among included subjects

Table (2): Delay among included subjects

|  |  |  |
| --- | --- | --- |
| Parameter | Value ( N = 100) | |
| Delay (hr), Median (Range) | 1 (0.5-3) | |
|  | Number | Percentage |
| * 0.5 | 6 | 6 |
| * 1 | 56 | 56 |
| * 2 | 22 | 22 |
| * 3 | 16 | 16 |

Table (2) showed that: the delay between poisoning till entering hospital had a median of 1 hour and ranged between 0.5 to 3 hours.

Table (3): Type of poison and dose among included subjects

|  |  |  |
| --- | --- | --- |
| Parameter | Value ( N = 100) | |
| Number | Percentage |
| Type of poison |  |  |
| * Medications/Drugs | 33 | 33 |
| * Toxic/Poisonous Substances | 14 | 14 |
| * Chemical Substances | 53 | 53 |
| Poison |  |  |
| * CNS drugs |  |  |
| * Clozapex | 7 | 7 |
| * Depakine drug | 7 | 7 |
| * CVS drugs |  |  |
| * Indral | 6 | 6 |
| * Atropine | 7 | 7 |
| * Corrosive |  |  |
| * Clorox | 5 | 5 |
| * Phenol | 7 | 7 |
| * Detergent | 7 | 7 |
| * Caustic soda | 7 | 7 |
| * Pesticides |  |  |
| * Rodenticide | 7 | 7 |
| * Insecticide | 6 | 6 |
| * Botulism | 3 | 3 |
| * PPD | 3 | 3 |
| * Addiction (Hashish) | 8 | 8% |
| * Iron supplements | 6 | 6 |

Table (3) showed that: The distribution of the type of poison indicates that medications/drugs, toxic/poisonous substances, and chemical substances accounted for 33%, 14%, and 53% respectively. Among these cases, 7% were attributed to antipsychotic poisoning, with Clozapex being the prominent medication involved. Similarly, Depakine, an anticonvulsant and mood-stabilizing drug, accounted for another 7% of poisoning incidents. Poisoning with Indral, an antihypertensive medication, was observed in 6% of cases. Corrosive and caustic substances, such as detergents and caustic soda, affected 7% of individuals, while phenol and Clorex were responsible for 7% and 5% of cases respectively. Additionally, 8% of individuals experienced poisoning related to hashish, and 3% were affected by botulism. PPD exposure accounted for 3% of poisoning incidents, and 6% of cases were linked to Iron supplements. Rodenticides affected 7% of individuals and 6% exposed to insecticides.

Figure (3): Type of poison distribution among included subjects

Table (4): Vital signs among included subjects

|  |  |
| --- | --- |
| Vitals | Value ( N = 100) |
| HR (beat/min) | 93 (58-160) |
| RR (Breath/min) | 26 (14-46) |
| Blood Pressure |  |
| SBP (mmHg) | 93 (67-125) |
| DBP (mmHg) | 56 (26-76) |

Heart Rate (HR), Respiratory Rate (RR), Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP)

Table (4) showed that: The heart rate (HR) ranged from 58 to 160 beats per minute, with an average value of 93 beats per minute. The respiratory rate (RR) ranged from 14 to 46 breaths per minute, with an average value of 26 breaths per minute. In terms of blood pressure, the systolic blood pressure (SBP) ranged from 67 to 125 mmHg, with an average value of 93 mmHg. The diastolic blood pressure (DBP) ranged from 26 to 76 mmHg, with an average value of 56 mmHg.

Table (5): Presentation among included subjects

|  |  |  |  |
| --- | --- | --- | --- |
| System | Presentation | Number | Percentage |
| Cardiovascular System | Bradycardia | 5 | 5% |
| Hypotension | 25 | 25% |
| Respiratory System | Respiratory distress | 49 | 49% |
| Oral | Drooling of saliva | 12 | 12% |
| Smell of phenol | 5 | 5% |
| Oral white patch | 7 | 7% |
| Gastrointestinal System | Constipation | 11 | 11% |
| Difficult feeding | 6 | 6% |
| Gastroenteritis | 6 | 6% |
| Nausea | 11 | 11% |
| Severe abdominal pain | 11 | 11% |
| Vomiting | 38 | 38% |
| Nervous System | Agitation | 6 | 6% |
| Confusion | 6 | 6% |
| Drowsiness | 23 | 23% |
| Lethargy | 11 | 11% |
| Unconsciousness | 18 | 18% |
| Weak cry | 11 | 11% |
| Weakness | 6 | 6% |

Table (5) showed that: Hypotension was the most common presentation in the Cardiovascular System (25%), followed by bradycardia (5%). Respiratory distress was the most prevalent presentation in the Respiratory System (49%). Oral manifestation included drooling of saliva (12%), smell of phenol (5%), and white oral patches (7%).Vomiting was the most common presentation in the Gastrointestinal System (38%), while the Nervous System exhibited presentations such as drowsiness (23%), unconsciousness (18%), lethargy (11%), and weakness (6%).

Table (6): Management done for subjects

|  |  |  |  |
| --- | --- | --- | --- |
| Category | Treatment | Number | Percentage |
| ABC | **ABC** | **100** | **100%** |
| Decontamination | Dilution therapy | 22 | 22% |
| Gastric wash | 77 | 77% |
| Antidote | Activated charcoal | 5 | 5% |
| Botulium antitoxin | 6 | 6% |
| Atropine | 17 | 17% |
| Defroxamine | 5 | 5% |
| Egg white | 5 | 5% |
| Symptomatic Treatment | Steroids | 22 | 22% |
| Symptomatic treatment | 6 | 6% |
| Antibiotics | Antibiotics | 60 | 60% |
| Vancomycin IV | 8 | 8% |
| Ultracillin | 41 | 41% |
| Clorofan | 6 | 6% |
| Claforan | 35 | 35% |
| Ceftriaxone | 8 | 8% |
| Ceftizidine | 5 | 5% |
| Others | Adequate nutrition for 3 weeks | 3 | 3% |
| Ampoule of danset | 5 | 5% |
| Milk | 5 | 5% |
| Saline | 5 | 5% |
| H2 blockers | 17 | 17% |

Table (6) showed that:

In the Decontamination category, dilution therapy was utilized in 22% of cases, while gastric wash was the predominant method, applied to 77% of the subjects.

Antidote treatments included activated charcoal (5%), botulium antitoxin (6%), atropine (17%), defroxamine (5%), and egg white (5%), indicating the use of specific countermeasures for certain toxic substances.

Symptomatic treatment involved the administration of steroids in 22% of cases and other general symptomatic treatments in 6% of cases, aimed at alleviating symptoms and managing patient comfort.

Antibiotics were employed as a treatment strategy in 60% of cases, with various antibiotics administered, including vancomycin IV (8%), ultracillin (41%), clorofan (6%), claforan (35%), ceftriaxone (8%), and ceftizidine (5%).

Table (7): CBC among included subjects

|  |  |
| --- | --- |
|  | Value ( N = 100) |
| Hb (g/dL) | 11.62 ± 1.08 |
|  | 11.35 (9.7-15) |
| WBCs (\*1000 cells/mm³) | 11.99 ± 1.04 |
|  | 11.85 (9.6-16) |
| RBCs (\*10^9cells/mm³) | 4.48 ± 0.4 |
|  | 4.4 (3.8-5.5) |
| MCV (femtoliters) | 76.13 ± 6.62 |
|  | 75 (63.9-94.2) |
| MCH (picograms) | 26.67 ± 2.28 |
|  | 27 (20.2-32) |

WBCs: White Blood Cells, RBCs: Red Blood Cells, MCV: Mean Corpuscular Volume, MCH: Mean Corpuscular Hemoglobin.

Table (7) showed that: included subjects had normal hemoglobin levels (Hb) with a mean value of 11.62 g/dL (range: 11.35-15 g/dL). The white blood cell count (WBCs) was within the normal range, averaging 11.99 x 10^9/L (range: 9.6-16 x 10^9/L). Red blood cell count (RBCs) was also within the normal range, with a mean value of 4.48 x 10^12/L (range: 4.4-5.5 x 10^12/L). The mean corpuscular volume (MCV) was 76.13 fL (range: 63.9-94.2 fL), indicating normal cell size. Similarly, the mean corpuscular hemoglobin (MCH) was 26.67 pg (range: 20.2-32 pg), representing a typical amount of hemoglobin per red blood cell.

Table (8): ABG among included subjects

|  |  |
| --- | --- |
|  | Value ( N = 100) |
| PH | 7.36 ± 0.05 |
|  | 7.35 (7.25-7.45) |
| PaO2 (mmHg) | 88.4 ± 6.86 |
|  | 88 (72-113) |
| PaCO2 (mmHg) | 37.62 ± 2.44 |
|  | 37.9 (32.3-44.3) |
| HCO3 (mEq/L) | 22.95 ± 2.24 |
|  | 22.9 (18.5-28.3) |

PaO2: Partial Pressure of Oxygen, PaCO2: Partial Pressure of Carbon Dioxide, HCO3: Bicarbonate

Table (8) showed that: the subjects had a slightly alkaline pH level, with a mean of 7.36 (range: 7.25-7.45), indicating normal acid-base balance. The partial pressure of oxygen (PaO2) was 88.4 mmHg (range: 72-113 mmHg), within the expected range for oxygen saturation. The partial pressure of carbon dioxide (PaCO2) averaged 37.62 mmHg (range: 32.3-44.3 mmHg), reflecting appropriate elimination of carbon dioxide. Bicarbonate (HCO3) levels were 22.95 mEq/L (range: 18.5-28.3 mEq/L), indicating normal bicarbonate buffering capacity.

Table (9): Kidney and liver function among included subejcst

|  |  |
| --- | --- |
|  | Value ( N = 100) |
| Renal function |  |
| Creatinine (mg/dL) | 0.47 ± 0.08 |
|  | 0.47 (0.38-0.78) |
| Urea (mg/dL) | 12.69 ± 3.11 |
|  | 11.8 (8-21) |
| Liver function |  |
| ALT (U/L) | 25.01 ± 5.24 |
|  | 24 (12-37) |
| AST (U/L) | 28.5 ± 6.39 |
|  | 29 (17-43) |
| Total Bilirubin (mg/dL) | 16.06 ± 2.74 |
|  | 16 (9-21) |

ALT: Alanine Aminotransferase, AST: Aspartate Aminotransferase

Table (9) showed that: the subjects had normal levels of creatinine, with a mean value of 0.47 mg/dL (range: 0.38-0.78 mg/dL). The blood urea nitrogen (BUN) levels, represented by urea, were within the normal range, averaging 12.69 mg/dL (range: 8-21 mg/dL). The liver function tests demonstrated normal enzyme levels, as indicated by the mean values of alanine aminotransferase (ALT) at 25.01 U/L (range: 12-37 U/L) and aspartate aminotransferase (AST) at 28.5 U/L (range: 17-43 U/L). Total bilirubin levels were 16.06 μmol/L (range: 9-21 μmol/L), indicating normal liver metabolism.

Figure (4): ALT and AST among subjects

Table (10): Electrolyte measurements among included subjects

|  |  |
| --- | --- |
|  | Value ( N = 100) |
| Na (mEq/L) | 142.66 ± 11.91 |
|  | 143 (109-173) |
| K (mEq/L) | 4.21 ± 0.31 |
|  | 4.2 (3.5-4.9) |
| Ca (mEq/L) | 1.17 ± 0.08 |
|  | 1.17 (0.94-1.4) |

Table (10) showed that: the subjects had normal sodium levels, with a mean of 142.66 mEq/L (range: 109-173 mEq/L). Potassium levels were within the normal range, averaging 4.21 mEq/L (range: 3.5-4.9 mEq/L). Calcium levels were also within the normal range, with a mean value of 1.17 mmol/L (range: 0.94-1.4 mmol/L). These results indicate adequate electrolyte balance in the included subjects.

Table (11): Fate and Outcome data among included subjects

|  |  |
| --- | --- |
|  | Value ( N = 100) |
| ICU admission | 44 (44%) |
| Time at ICU (Days) | 2.14 ± 0.35 |
|  | 2 (2-3) |
| Time in pediatric department (Days) | 1.69 ± 1.78 |
|  | 1 (0-7) |
| Time till discharge | 2.63 ± 1.84 |
|  | 2 (1-7) |

Table (11) showed that: 44% required ICU admission, indicating the severity of their conditions. The average time spent in the ICU was reported as 2.14 days, with a range of 2 to 3 days. In the pediatric department, the average length of stay was 1.69 days, with a wide variation ranging from 0 to 7 days. The average time until discharge was reported as 2.63 days, with a range of 1 to 7 days.

Table (12): Correlation between different poison types with patients' data and age:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Medications/Drugs | | Toxic/Poisonous  Substances | | Chemical Substances | |
| r | P. value | r | P. value | r | P. value |
| Age (Years) | .410\*\* | 0.00002 | -.401\*\* | 0.00004 | -0.00804 | 0.93671 |
| Age category |  |  |  |  |  |  |
| * Infant | -.499\*\* | <0.00001 | .552\*\* | <0.00001 | -0.04791 | 0.63595 |
| * Toddler | -0.18907 | 0.05957 | -0.18907 | 0.05957 | .342\*\* | 0.0005 |
| * Preschoolers | .592\*\* | <0.00001 | -.230\* | 0.02117 | -.327\*\* | 0.00089 |
| * School-age children | .440\*\* | <0.00001 | -0.17109 | 0.08877 | -.243\* | 0.01477 |
| * Adolescents | 0.089087 | 0.37809 | -.208\* | 0.03796 | 0.107443 | 0.28733 |

R: Pearson correlation

Table (12) showed that:

In terms of Age, there was a statistically significant moderate positive correlation with Medications/Drugs poisoning (r = 0.410, p < 0.001), and a statistically significant moderate negative correlation with Toxic/Poisonous Substances poisoning (r = -0.401, p < 0.001). The correlation with Chemical Substances was very weak and not significant (r = -0.00804, p = 0.937).

In the Age Category analysis, infants showed a statistically significant strong negative correlation with Medications/Drugs poisoning (r = -0.499, p < 0.001). Toddlers displayed a statistically significant moderate positive correlation with Chemical Substances poisoning (r = 0.342, p = 0.001). Preschoolers had a statistically significant strong positive correlation with Medications/Drugs poisoning (r = 0.592, p < 0.001), a weak negative correlation with Toxic/Poisonous Substances (r = -0.230, p = 0.021), and a moderate negative correlation with Chemical Substances (r = -0.327, p = 0.001). School-age children demonstrated a statistically significant moderate positive correlation with Medications/Drugs poisoning (r = 0.440, p < 0.001), and weak negative correlations with Toxic/Poisonous Substances (r = -0.171, p = 0.089) and Chemical Substances (r = -0.243, p = 0.015). Adolescents showed a statistically significant weak negative correlation with Toxic/Poisonous Substances poisoning (r = -0.208, p = 0.038).

Table (13): Correlation between different poison types with patients' data and sex:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Medications/Drugs | | Toxic/Poisonous  Substances | | Chemical Substances | |
| r | P. value | r | P. value | r | P. value |
| Sex |  |  |  |  |  |  |
| * Male | 0.130728 | 0.19483 | -.201\* | 0.04512 | 0.063408 | 0.53083 |
| * Female | -0.13073 | 0.19483 | .201\* | 0.04512 | -0.06341 | 0.53083 |

R: Pearson correlation

Table (13) showed that: There was no statistically significant correlation between Sex and different poison types.

Table (14): Correlation between different poison types with patients' data and vitals:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Medications/Drugs | | Toxic/Poisonous  Substances | | Chemical Substances | |
| r | P. value | r | P. value | r | P. value |
| Vitals |  |  |  |  |  |  |
| * HR | -.203\* | 0.04273 | .519\*\* | <0.00001 | -.286\*\* | 0.00397 |
| * RR | -.472\*\* | <0.00001 | .573\*\* | <0.00001 | -0.09154 | 0.36507 |
| * SBP | .364\*\* | 0.0002 | -.563\*\* | <0.00001 | 0.179761 | 0.07352 |
| * DBP | 0.095082 | 0.3467 | -.258\*\* | 0.00959 | 0.147251 | 0.14375 |

R: Pearson correlation

Table (14) showed that: Heart Rate (HR) had a statistically significant weak negative correlation with Medications/Drugs poisoning (r = -0.203, p = 0.046), a moderate positive correlation with Toxic/Poisonous Substances poisoning (r = 0.519, p < 0.001), and a moderate negative correlation with Chemical Substances poisoning (r = -0.286, p = 0.002). Respiratory Rate (RR) had a statistically significant strong negative correlation with Medications/Drugs poisoning (r = -0.472, p < 0.001) and a strong positive correlation with Toxic/Poisonous Substances poisoning (r = 0.573, p < 0.001). Systolic Blood Pressure (SBP) showed a statistically significant moderate positive correlation with Medications/Drugs poisoning (r = 0.364, p < 0.001) and a strong negative correlation with Toxic/Poisonous Substances poisoning (r = -0.563, p < 0.001). Diastolic Blood Pressure (DBP) displayed a statistically significant weak positive correlation with Chemical Substances poisoning (r = 0.147, p = 0.104).

Table (15): correlation between outcomes with Age

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ICU | | Time till discharge | |
|  | r | P. Value | r | P. Value |
| Age | -0.08936 | 0.3766 | -.255\* | 0.01051 |

R: Pearson correlation

There was significant negative correlation between Time till discharge and age.

Table (16): correlation between outcomes with sex

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ICU | | Time till discharge | |
|  | r | P. Value | r | P. Value |
| Sex |  |  |  |  |
| Male | 0.020565 | 0.83907 | -.265\*\* | 0.00779 |
| Female | -0.02056 | 0.83907 | .265\*\* | 0.00779 |

R: Pearson correlation

There was significant negative correlation between Time till discharge and male gender.

Table (17): correlation between outcomes with vitals

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ICU | | Time till discharge | |
|  | r | P. Value | r | P. Value |
| Vitals |  |  |  |  |
| HR | 0.126352 | 0.21033 | .403\*\* | 0.00003 |
| RR | -0.05383 | 0.5948 | .399\*\* | 0.00004 |
| Blood pressure |  |  |  |  |
| SBP | -.305\*\* | 0.00206 | -.624\*\* | <0.0001 |
| DBP | -.387\*\* | 0.00007 | -.204\* | 0.04213 |

R: Pearson correlation

HR and RR showed significant positive correlation with Time till discharge.

Systolic And Diastolic Blood pressure showed significant negative correlation with both ICU admission and Time till discharge.

Table (18): correlation between outcomes with kidney and liver function test

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ICU | | Time till discharge | |
|  | r | P. Value | r | P. Value |
| Renal Function | |  |  |  |
| Creatinine | .387\*\* | 0.00007 | .278\*\* | 0.00515 |
| Urea | -0.07245 | 0.47378 | -.231\* | 0.02052 |
| liver function | |  |  |  |
| ALT | 0.145218 | 0.14942 | -.300\*\* | 0.00239 |
| AST | 0.037738 | 0.70932 | -.378\*\* | 0.00011 |
| Total Bilirubin | -0.00472 | 0.96281 | 0.032439 | 0.74867 |

R: Pearson correlation

Creatinine level was significantly associated with ICU admission and Time till discharge. Urea, ALT and AST were significantly negatively associated with Time till discharge.

Table (19): correlation between outcomes with other parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ICU | | Time till discharge | |
|  | r | P. Value | r | P. Value |
| Weight | -0.09889 | 0.32764 | -.441\*\* | <0.0001 |
| residence |  |  |  |  |
| Urban | 0.001638 | 0.98709 | -.479\*\* | <0.0001 |
| Rural | -0.00164 | 0.98709 | .479\*\* | <0.0001 |
| type of poison | |  |  |  |
| Medications/Drugs | -.553\*\* | <0.0001 | -.421\*\* | 0.00001 |
| Toxic/Poisonous Substances | .232\* | 0.02002 | .849\*\* | <0.0001 |
| Chemical Substances | .292\*\* | 0.00325 | -.377\*\* | 0.00011 |
| Delay | -.525\*\* | <0.0001 | 0.124451 | 0.21733 |
| CBC |  |  |  |  |
| Hb | -.378\*\* | 0.0001 | -0.18819 | 0.06079 |
| WBCs | 0.146991 | 0.14446 | -0.03419 | 0.73561 |
| RBCs | -.213\* | 0.03327 | -0.13343 | 0.18567 |
| MCV | .316\*\* | 0.00138 | .276\*\* | 0.00541 |
| MCH | -0.05872 | 0.5617 | -0.02521 | 0.80341 |
| ABG |  |  |  |  |
| PH | .205\* | 0.04103 | 0.105693 | 0.29529 |
| PaO2 | -0.14339 | 0.15466 | -.252\* | 0.0114 |
| PaCo2 | 0.154145 | 0.12571 | -.222\* | 0.02667 |
| HCo3 | 0.128664 | 0.20204 | -.300\*\* | 0.00242 |
| Serum electrolytes | |  |  |  |
| Na | 0.147877 | 0.14203 | 0.041682 | 0.68052 |
| K | .366\*\* | 0.00018 | .200\* | 0.04565 |

R: Pearson correlation

Significant negative correlations were observed between variables such as weight, urban residence, medications/drugs, chemical substances, partial pressure of oxygen (PaO2), partial pressure of carbon dioxide (PaCO2), and bicarbonate (HCO3) levels with the duration until discharge. Conversely, rural residence, toxic/poisonous substances, and mean corpuscular volume (MCV) exhibited significant positive correlations with the time elapsed until discharge.

Regarding intensive care unit (ICU) admission, noteworthy negative correlations were identified between medications/drugs, delay between poisoning and hospital entry, hemoglobin levels (Hb), and red blood cell counts (RBCs). Conversely, toxic/poisonous substances, chemical substances, MCV, pH levels, and potassium (K) levels displayed significant positive correlations with ICU admission.

**Discussion**

The rate of harming among youngsters addresses a convincing and squeezing worry inside the domain of pediatric wellbeing and security. Characterized as the coincidental openness to unsafe substances that incite cell injury or demise, youth harming stays an essential general wellbeing challenge. This peculiarity is filled by the natural interest and exploratory propensities of kids, which frequently prompts the unexpected ingestion, inward breath, assimilation, or infusion of poisonous specialists. Subsequently, the requirement for powerful avoidance, the executives, and comprehension of the results of pediatric harming is vital to shielding the prosperity of our most youthful and most weak populace (Soave et al., 2022).

The exceptional weaknesses of youngsters to harming episodes highlight the significance of exhaustive administration systems. Quick and fitting mediation is basic in forestalling the movement of side effects and relieving possible long haul results. The administration of pediatric harming involves a multidisciplinary approach including clinical experts, parental figures, instructors, and policymakers. From prompt advances, for example, poison expulsion and steady consideration to the organization of remedys and specific therapy in extreme cases, the administration cycle is diverse and highlights the many-sided exchange between clinical science, brain research, and social help (Lee et al., 2022; Mubarak et al., 2021).

Past the domain of prompt attention, the assurance of results in pediatric harming cases holds critical ramifications for both momentary recuperation and long haul wellbeing. The direction of results is impacted by a group of stars of variables, including the sort and measure of toxic substance, the youngster's age and physiological reaction, the practicality and sufficiency of clinical mediation, and the presence of any hidden ailments. The continuum of results goes from gentle cases with complete recuperation to serious situations described by organ harm or lethal outcomes. Subsequently, a careful comprehension of the elements molding these results is essential for directing clinical navigation, upgrading intercessions, and refining preventive procedures (Salem et al., 2023).

Considering the worldwide pervasiveness of life as a youngster harming episodes and their likely repercussions, resolving this issue through a complex lens is basic. General wellbeing drives, training efforts, progressions in clinical treatment, and strategy changes join to shape an extensive methodology pointed toward decreasing the occurrence, upgrading the administration, and working on the assurance of results in instances of pediatric harming. By inspecting the mind boggling transaction of variables adding to youth harming occurrences and their repercussions, we can work on the whole to produce a more secure climate for kids and at last ease the weight of this preventable wellbeing challenge (Azimi et al., 2023; Saikia et al., 2020).

The primary point of the review was to assess the predominance of harming occurrences in youngsters, assess the board, and find out the subsequent results.

This review study was completed at the Pediatric Division and Pediatric Emergency unit Qena College Medical clinic, Egypt, traversing from January 2020 to December 2021. The review selected subjects in light of consideration rules, which enveloped all patients owned up to the pediatric division with side effects reminiscent of, not entirely set in stone by history, actual assessment, and research center appraisals. Altogether, 100 patients meeting these models were remembered for the investigation.

**The main results were as follows:**

As respect segment information, we tracked down a mean period of 3.78 years, with babies involving the biggest age bunch at 39%, trailed by babies (32%), preschoolers (12%), young kids (7%), and teenagers (10%). The orientation circulation demonstrated that 67% of the patients were female, and 33% were male. The mean weight was 15.78 kg, with most of patients dwelling in metropolitan regions (59%).

Harming among kids frequently shows particular examples in view of formative stages and physiological variables. In this review, the noticed circulation of harming cases across various age bunches gives significant experiences into the weakness of specific portions of the pediatric populace. Newborn children, who comprised the biggest age bunch, are especially defenseless because of their exploratory way of behaving, oral obsession, and restricted capacity to fathom likely risks. Their propensity to place objects in their mouths expands the gamble of unintentional ingestion of poisonous substances. Social propensities could likewise add to the orientation dissemination in harming cases. This rate might be because of females' openness to social pressure and are more at risk to a close to home and situational emergency that might lead them to self-hurt (Saikia et al., 2020).

Then again, Lin et al. (2011) led a review zeroing in on poison openness and results among 140 kids treated at a pediatric crisis division. These youngsters had a typical time of 8.97 years, and there was a moderately even dispersion between sexes. The most elevated portrayal in their review was among young people (41.4%), trailed by pre-young (35.7%), babies (15.0%), and young kids (7.9%). Lin et al's. concentrate on included a more extensive age range, essentially zeroing in on teenagers and pre-young kids. The variety in age circulation and the accentuation on various age bunches between the two examinations highlight likely contrasts in poison openness examples and results among pediatric populaces.

Conversely, Azab et al. (2013) led an epidemiological review surveying intense harming in youngsters at Ain Hoaxes College's therapy place in Cairo. Their discoveries uncovered unmistakable orientation circulations, leaning toward young men in preschool and young classes, while young ladies dwarfed young men quite in the juvenile gathering. The concentrate likewise featured age circulation, overwhelmingly including 2-and 3-year-olds in harming cases, alongside noticed occasional changes. Nearly, our review zeroed in on a more youthful partner, fundamentally newborn children and babies, displaying a somewhat impartial orientation circulation. Conversely, Azab et al. inspected a more extensive age range, complementing orientation disparities across age gatherings and underscoring higher harming pervasiveness among 2-and 3-year-olds. These distinctions affirm the previously mentioned possible epidemiological varieties in pediatric harming across different settings.

In this review, we sorted the kinds of toxins into prescriptions/drugs (33%), harmful/noxious substances (14%), and compound substances (53%). Further examination of explicit toxic substance types uncovered eminent occasions of antipsychotic harming, for example, Clozapex and Depakine, representing 7% each. Destructive and burning substances, including cleansers and acidic pop, impacted 7% of cases. Weed harming addressed 8% of the cases, and openness to rodenticides and insect sprays was seen in 7% and 6% of people, separately. These discoveries shed light on the variety of toxic substance types and their separate frequencies inside the concentrated on populace.

Many examinations from created countries, similar to the review led by Rajka et al. (2007) have revealed medications and medications to be the most widely recognized specialists.

Cripps et al. (2006) Comparatively analyzed drug poisonings among Australian kids. Their discoveries underlined the meaning of paracetamol-related cases, lining up with our investigation of prescription/drug variety.

Reith et al. (2001) detailed a comparative pattern of paracetamol-related poisonings, especially among one and two-year-old Australian kids.

Likewise, Bond et al. (2012) discoveries featured the effect of kids' self-openness to remedy items, including narcotics and narcotic hypnotics. Their perceptions reflect our investigation of medicine/drug variety and its suggestions.

In an alternate locale, Dayasiri et al. (2018) examination in country Sri Lanka revealed family synthetic substances as a conspicuous figure poisonings. Remarkably, lamp fuel oil arose as an intermittent supporter, lining up with our discoveries in regards to compound substances. Furthermore, their perceptions of restorative specialists and establish poisonings relate with our discoveries of harmful/noxious substances.

In our review, Hypotension arose as a pervasive cardiovascular show (25%), while respiratory misery overwhelmed the respiratory framework (49%). Oral signs included slobbering of spit (12%), the smell of phenol (5%), and oral white patches (7%). Retching was the dominating gastrointestinal show (38%), and the sensory system introduced side effects like tiredness (23%), obviousness (18%), and shortcoming (6%). These discoveries give an exhaustive comprehension of the clinical introductions related with pediatric harming cases.

Differentiating our review, Lin et al. (2011) zeroed in on broad clinical introductions among kids with poison openness, introducing a more extensive outline. Their discoveries distinguished changing levels of symptomatology, with 18.6% of cases being asymptomatic, and striking extents encountering gastrointestinal (25%), neurological (34.3%), and cardiovascular (5.7%) side effects, among others. Our review gives a more definite side effect breakdown, contributing nuanced experiences into explicit indications.

Besides, Woyessa et al. (2020) concentrate on in Western Ethiopia dug into clinical results of harming cases, uncovering unmistakable side effect profiles. Cerebral pain was accounted for in 4.27% of cases, while skin variety change (16.59%) and bewilderment or obviousness (19.43%) featured possible foundational impacts. Gastrointestinal side effects of retching or the runs (19.43%) and epigastric or stomach torment (28.91%) exhibited the effect on the stomach related framework.

Conversely, Kohli et al. (2008) detailed adjusted sensorium, respiratory pain, seizures and so on, to be most normal introductions.

In our review, the administration of harming cases envelops a different scope of medicines, as featured in our review. ABC (aviation route, breathing, dissemination) treatment was generally regulated to all patients (100 percent), filling in as a basic move toward patient adjustment. Purification techniques were custom-made with a gastric wash utilized in 77% of cases and weakening treatment in 22%, mirroring the significance of setting explicit methodologies. Cures assumed a part in tending to explicit cases, including enacted charcoal (5%), botulium counteragent (6%), and atropine (17%), showing the nuanced idea of treatment choice. Suggestive medicines, anti-microbials, and different mediations were painstakingly customized to individual cases, highlighting the customized approach in overseeing pediatric harming cases inside an emergency clinic setting.

In the review directed by Woyessa et al. (2020) their examination of clinical side effects in 211 instances of harming the board gave important experiences into various classes of measures taken. Prehospital care was seen in 20.40% of cases, underlining the meaning of early clinical reaction. General revival measures were noticeably controlled in 68.72% of cases, delineating their basic job in balancing out patients. Explicit counteractant organization was kept in 24.17% of cases, exhibiting the significance of designated and concentrated medicines. An extra 7.11% of cases included the use of all encompassing means, further outlining an extensive way to deal with harming the executives procedures.

Interestingly, the review directed by Khan et al. (2016) planned to distinguish patterns in intense harming cases, zeroing in on recurrence, nature of harming specialists, clinical introductions, and results. Their discoveries uncovered that 16.2% of patients got cures, while enacted charcoal was regulated to 52.8% and gastric lavage to 53.3%. This correlation highlights the varieties in administration approaches across various examinations, stressing the significance of a diverse and individualized system in tending to pediatric harming cases successfully.

Likewise, Dhanya et al. (2009) referenced that general estimates like Gastric lavage (83%) and Ryles Cylinder Desire (80%) were essentially utilized for the executives of harming cases.

Nearly, the concentrate by Tobaiqy et al. (2010) planned to assess intense harming the board among kids in a Saudi Bedouin trauma center. Their ordered mediations uncovered that 44.9% got counteractants, 21.7% went through strong treatment, and 33.3% didn't need intercession. Significant counteractant measures included initiated charcoal (51.6%), N-acetylcysteine (29.0%), allergy medicines (9.7%), naloxone (3.2%), atropine (3.2%), and fomepizole (3.2%). By and large, these investigations highlight the complicated and custom-made nature of overseeing pediatric harming cases, incorporating different mediations to guarantee ideal patient consideration.

In this review, Lab discoveries demonstrated that the patients for the most part had typical qualities for fundamental signs, blood boundaries, blood vessel blood gas (ABG) estimations, kidney and liver capability, and serum electrolyte levels. This recommends that the harming cases were not related with broad physiological unsettling influences in these boundaries, adding to a superior comprehension of the general wellbeing status of the patients. Nonetheless, around 44% of the patients required ICU affirmation, with a typical ICU stay of 2.14 days. The typical time till release was 2.63 days, with striking varieties saw among individual cases. These discoveries stress the seriousness of the harming cases and the requirement for concentrated care for a huge extent of patients.

Amazingly, our discoveries line up with those of Khan et al. (2016) where their examination showed a middle hospitalization time of 2 days (with an interquartile scope of 1-4 days).

Our review dug into a far reaching investigation of relationships between's different factors and various parts of harming cases, including poison types, ICU confirmation, and time till release. Through thorough measurable examination, we uncovered critical affiliations that shed light on likely connections and prognostic markers. Among the remarkable connections, endlessly age classifications arose as huge elements. In particular, newborn children, the most youthful age bunch, showed areas of strength for a connection with prescriptions/drugs harming, demonstrating that this gathering was especially defenseless against such toxic substance types. This perception could be ascribed to newborn children's expanded weakness to inadvertent ingestions because of their exploratory way of behaving and restricted capacity to perceive hurtful substances.

Our outcomes were predictable with the review led by Lin et al. (2011) which carried forward convincing bits of knowledge into the examples of toxin openness causes across unmistakable age accomplices. Their discoveries explained that purposeful harming comprised the essential etiological element among youths, as opposed to unintentional harming, which prevailed among pre-younger students. Significant was the striking reverse relationship between's the recurrence of unintentional harming occurrences and ordered age, suggesting a decrease in such cases as youngsters gotten older. Moreover, the review uncovered huge connections connecting the reason for poison openness with age and orientation, highlighting the complicated transaction of these variables in affecting the event of harming occasions. The equal perceptions of a backwards connection among's age and incidental harming across the two examinations prove the idea that more youthful people, because of their exploratory way of behaving and restricted acumen, are at a raised gamble of accidental ingestions.

The review led by Ahmed et al. (2015) reveals insight into an especially weak age bunch as for harming episodes. Their examination obviously distinguished kids matured 1-5 years as the most powerless to harming. Moreover, their discoveries demonstrated a particular relationship between harming from family things and insect sprays, which was only seen among youngsters inside the ages of 1-5 years. This lines up with our review's decisions in regards to the weakness of babies, further supporting the idea that more youthful youngsters are at an elevated gamble of harming episodes.

Additionally, Schmertmann et al. (2014) found that the chances of harming by restorative substances contrasted and non-restorative substances changed with age. More youthful kids were bound to be harmed by non-restorative or family substances than more seasoned youngsters, which is to some extent made sense of by the normal stockpiling of these substances near the floor, where they are open to little youngsters.

In our review, we tracked down critical connections between's important bodily functions and harming results. Raised pulses and respiratory rates were connected to poisonous substances, potentially showing pressure and respiratory trouble. Circulatory strain showed experiences, with prescriptions/drugs harming decently relating with systolic pulse and synthetic substances harming pitifully with diastolic circulatory strain. Hemoglobin levels were tolerably adversely corresponded with prescriptions/drugs harming, recommending pallor related side effects. Potassium levels unequivocally corresponded with ICU confirmation, possibly demonstrating extreme harming cases requiring concentrated care.

As far as toxic substance types, meds/drugs harming related fundamentally with both ICU confirmation and time till release. This proposes that cases including meds/medications might prompt more serious results, requiring ICU care and possibly longer clinic stays. On the other hand, harmful/noxious substances harming showed major areas of strength for a relationship with time till release, demonstrating that such cases could prompt delayed hospitalization for perception and the board.

Rather than our discoveries, the review directed by Dayasiri et al. (2018) revealed irregularities in the connection between harming occasions and resulting unexpected issues. While a greater part of harming episodes didn't display unexpected issues, a significant piece of youngsters (60.4%) expected move from essential consideration clinics to optional/tertiary consideration offices for additional administration. This disparity proposes that the idea of harming cases and their related results can change generally between studies. The exchange of countless cases regardless of the shortfall of unexpected problems brings up issues about the dynamic cycle in quiet administration and features possible contrasts in medical services practices or assets between the two settings.

The outcomes acquired in our review line up with the discoveries of Sam et al. (2009) who comparatively featured the vital job of the pre-hospitalization time frame in deciding the seriousness of harming occurrences. Sam et al's. concentrate on underlined the meaning of convenient mediation, distinguishing the length among openness and treatment commencement as a solid prescient component for the seriousness of harming cases. Their experiences resound with our review's connections, proposing that postponed treatment might prompt irreversible organ harm because of pinnacle blood poison levels. Moreover, Sam et al. highlighted the basic significance of early administration in upgrading endurance rates among harmed patients.

Abdelkader et al. (2022) concentrate correspondingly highlights the meaning of length and timing with regards to harming results. Their discoveries feature a genuinely huge qualification in understanding results concerning the term of medical clinic stay and the time delay between poison admission and clinic appearance. This lines up with our review's suggestions that fast mediation and decreased postpone in looking for clinical consideration can add to additional good persistent results in instances of harming.

Essentially, Molla et al. (2022) underscored the basic impact of harming course and openness term on ICU stay and treatment results, supporting the perplexing idea of these variables in deciding patient forecast. Their discoveries stressed that harming through the gastrointestinal system introduced a significantly raised chance of prompting deadly treatment results, roughly 2.5 times higher contrasted with other harming courses. Moreover, an outstanding relationship arose between openness span and the probability of longer ICU stay and lethal results. This study showed poison types and term can expanded clinic stays, possibly influencing a definitive result of clinical consideration.

**Summary**

Youth harming is a huge worry in pediatric wellbeing because of unintentional openness to destructive substances that can damage or kill cells. Kids' regular interest frequently prompts them unwittingly ingesting, breathing in, retaining, or infusing poisonous specialists. To resolve this issue, it's critical to zero in on counteraction, the executives, and comprehension of pediatric harming. The desperation originates from the weakness of kids and their exploratory inclinations. Quick mediation is fundamental to forestall side effect heightening, and a multidisciplinary approach including clinical experts, guardians, teachers, and policymakers is important. From prompt advances like toxic substance expulsion to specific therapies, the administration cycle features the crossing point of clinical science, brain research, and social help.

The results of pediatric harming cases have expansive ramifications for transient recuperation and long haul wellbeing. Factors, for example, the toxin type, sum, kid's age, clinical intercession practicality, and fundamental ailments impact results. The range of results fluctuates, going from full recuperation in gentle cases to extreme occasions causing organ harm or demise. Understanding these variables is urgent for directing clinical choices, enhancing mediations, and refining preventive methodologies. Given the worldwide commonness of young life harming and likely results, an extensive methodology is fundamental. This approach incorporates general wellbeing drives, training efforts, clinical progressions, and strategy changes to all in all establish a more secure climate for kids, diminishing the weight of this preventable wellbeing challenge.

The primary point of the review was to assess the predominance of harming occurrences in kids, assess the executives, and determine the subsequent results.

This review study was completed at the Pediatric Division and Pediatric Emergency unit Qena College Medical clinic, Egypt, traversing from January 2020 to December 2021. The review selected subjects in view of consideration models, which enveloped all patients confessed to the pediatric division with side effects reminiscent of, not entirely settled by history, actual assessment, and research facility evaluations. Altogether, 100 patients meeting these rules were remembered for the investigation.

The primary outcomes were as per the following:

• Concentrate on zeroed in on pediatric harming cases, breaking down tolerant attributes, poison types, important bodily functions, purification strategies, medicines, blood boundaries, and relationships with results.

• Patients' mean age: 3.78 years. Age gatherings: babies (39%), little children (32%), preschoolers (12%), young kids (7%), teenagers (10%).

• Orientation dissemination: 67% female, 33% male. Mean weight: 15.78 kg. Metropolitan region home: 59%, provincial: 41%.

• Delay among harming and emergency clinic passage: middle 60 minutes (range: 0.5 - 3 hours).

• Sorts of toxin: meds/drugs (33%), harmful/noxious substances (14%), compound substances (53%).

• Normal harming substances: antipsychotic prescription (7%), Clozapex (noticeable), Depakine (7%), Indral (6%), destructive/scathing substances (7%), phenol (7%), Clorex (5%), maryjane (8%), botulism (3%), PPD (3%), iron enhancements (6%), rodenticides (7%), insect sprays (6%).

• Important bodily functions: pulse (HR): 58-160 bpm (normal: 93 bpm), respiratory rate (RR): 14-46 breaths/min (normal: 26 breaths/min), systolic circulatory strain (SBP): 67-125 mmHg (normal: 93 mmHg), diastolic pulse (DBP): 26-76 mmHg (normal: 56 mmHg).

• Normal introductions: hypotension (25%), bradycardia (5%), respiratory misery (49%), retching (38%), different neurological side effects.

• Purification: gastric wash (77%), weakening treatment (22%).

• Cure medicines: enacted charcoal (5%), botulium antidote (6%), atropine (17%), defroxamine (5%), egg white (5%).

• Indicative treatment: steroids (22%), general suggestive medicines (6%).

• Anti-toxins utilized in 60% of cases.

• Blood boundaries inside ordinary reaches: hemoglobin (Hb), white platelet count (WBCs), red platelet count (RBCs), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), pH, halfway tension of oxygen (PaO2), fractional strain of carbon dioxide (PaCO2), bicarbonate (HCO3), creatinine, blood urea nitrogen (BUN), liver catalysts, all out bilirubin, sodium, potassium, calcium.

• ICU confirmation: 44% required, normal stay: 2.14 days. Pediatric office stay: 1.69 days, release time: 2.63 days.

• Relationships: Age corresponded with poison type, baby connection with medicine harming, little child connection with compound substance harming, preschooler relationship with prescription harming, negative connections between's HR, RR, DBP, Hb, and PaO2 with ICU, negative relationship between's male sex and time till release, positive relationships between's HR, RR, and K with time till release.

**Conclusion**

The review gives an extensive investigation of pediatric harming cases, incorporating segment information, poison types, clinical introductions, the executives methodologies, research center discoveries, ICU confirmation rates, and relationships between's factors. The discoveries feature the different scope of toxin types and their related clinical appearances, as well as the basic job of clinical mediations in dealing with these cases. The relationships distinguished add to a superior comprehension of the variables impacting ICU confirmation and length of medical clinic stay in pediatric harming cases. This study highlights the significance of proceeded with research and careful administration to guarantee ideal results for harmed kids.

**Recommendations**

• We suggest further imminent, multicenter concentrates on enveloping different geological locales and segment populaces to upgrade the generalizability of discoveries. Moreover, exploring the unpredictable interaction of financial elements and family conditions could divulge further experiences into the etiological underpinnings of pediatric harming episodes.

• It is prescribed to encourage public mindfulness through designated instructive projects, accentuating the protected stockpiling of meds, family synthetics, and harmful substances. Cooperative endeavors including medical services suppliers, schools, and local area pioneers can really scatter preventive measures and emergency treatment conventions.

• We suggest nonstop observation and information assortment in regards to the developing scene of poisonous specialists and harming designs, working with the brief recognizable proof of arising dangers. Reconciliation of cutting edge innovations, for example, continuous toxicovigilance frameworks could empower proactive reactions to moving harming patterns.

• Besides, it is prescribed to plan and carry out severe security guidelines on the bundling of drugs, synthetics, and family items. Youngster safe holders and clear marking of potential perils can act as essential obstructions, diminishing the openness of poisonous substances to kids.

• It is prescribed to lay out devoted poison control focuses or hotlines, giving available and specific direction to parental figures during harming occurrences. These focuses can offer telephonic help for guaranteed emergency treatment, cleaning methodology, and suitable clinical direction before looking for proficient consideration.

• We suggest encouraging interdisciplinary joint efforts between clinical toxicologists, pediatricians, crisis offices, and policymakers to devise extensive administration rules. The detailing of normalized conventions for evaluation, cleaning, cure organization, and follow-up care can advance treatment results.

• Finally, investigating the plausibility of coordinating toxin avoidance and the executives instruction into school curricula is suggested. Granting information about expected perils and proper reactions can enable kids with life-saving abilities and make a culture of security mindfulness since early on.

**Study Limitations**

Notwithstanding its significant commitments, our review had a few constraints that warrant thought. Right off the bat, the review idea of the review configuration might have prompted fragmented or missing information in the clinical records, possibly influencing the precision and thoroughness of our discoveries. Besides, the review was directed at a solitary community, which might restrict the generalizability of the outcomes to a more extensive populace. Moreover, the review zeroed in on a particular time period and geographic area, which could impact the commonness and sorts of harming cases. In addition, the dependence on existing clinical records obliged the factors accessible for examination, possibly neglecting other pertinent elements. At last, the concentrate transcendently used quantitative investigation, which could not completely catch the nuanced parts of pediatric harming cases.

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**الملخص العربي**

يعتبر تسمم الأطفال مصدر قلق كبير في صحة الأطفال بسبب التعرض العرضي للمواد الضارة التي يمكن أن تضر الخلايا أو تقتلها. غالبًا ما يؤدي فضول الأطفال الطبيعي إلى تناولهم مواد سامة أو استنشاقها أو امتصاصها أو حقنها عن غير قصد. لمعالجة هذه المشكلة ، من الضروري التركيز على الوقاية من تسمم الأطفال وإدارته وفهمه. تنبع الإلحاح من ضعف الأطفال وميولهم الاستكشافية. يعد التدخل السريع أمرًا ضروريًا لمنع تصاعد الأعراض ، ومن الضروري اتباع نهج متعدد التخصصات يشمل المهنيين الطبيين ومقدمي الرعاية والمعلمين وصناع السياسات. من الخطوات الفورية مثل إزالة السموم إلى العلاجات المتخصصة ، تسلط عملية الإدارة الضوء على تقاطع العلوم الطبية وعلم النفس والدعم الاجتماعي.

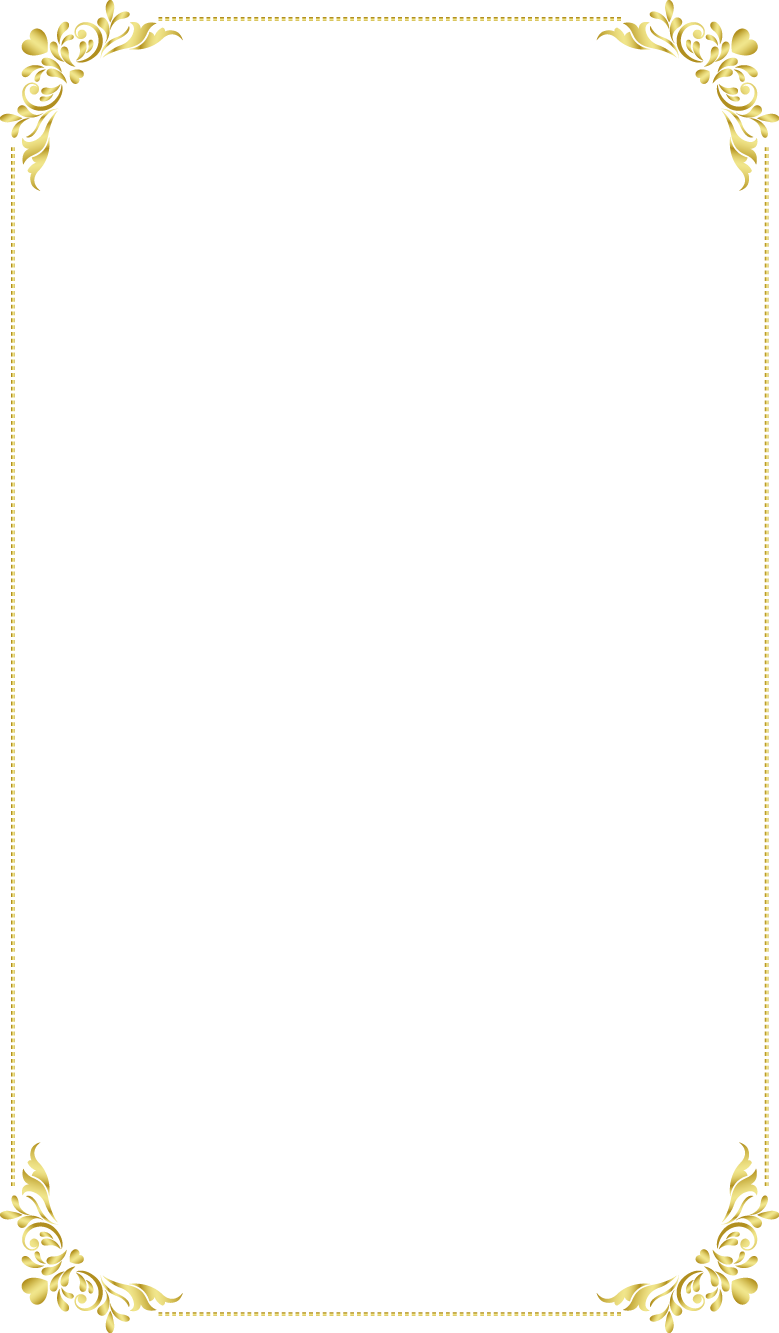
نتائج حالات تسمم الأطفال لها آثار واسعة على التعافي على المدى القصير والصحة على المدى الطويل. تؤثر العوامل مثل نوع السم وكميته وعمر الطفل وتوقيت التدخل الطبي والظروف الصحية الأساسية على النتائج. يختلف نطاق النتائج ، بدءًا من الشفاء التام في الحالات الخفيفة إلى الحالات الشديدة التي تسبب تلفًا في الأعضاء أو الوفاة. يعد فهم هذه العوامل أمرًا محوريًا لتوجيه القرارات الطبية وتحسين التدخلات وتنقيح الاستراتيجيات الوقائية. بالنظر إلى الانتشار العالمي لتسمم الأطفال والعواقب المحتملة ، من الضروري اتباع نهج شامل. يتضمن هذا النهج مبادرات الصحة العامة ، والحملات التعليمية ، والتطورات الطبية ، والتغييرات في السياسات لخلق بيئة أكثر أمانًا للأطفال بشكل جماعي ، مما يقلل من عبء هذا التحدي الصحي الذي يمكن الوقاية منه.

كان الهدف الرئيسي من الدراسة هو تقييم انتشار حوادث التسمم عند الأطفال ، وتقييم الإدارة ، والتأكد من النتائج الناتجة.

تم إجراء هذه الدراسة بأثر رجعي في قسم طب الأطفال ووحدة العناية المركزة للأطفال بمستشفى قنا الجامعي ، مصر ، والتي امتدت من يناير 2020 إلى ديسمبر 2021. وشملت الدراسة موضوعات بناءً على معايير التضمين ، والتي شملت جميع المرضى الذين تم قبولهم في قسم طب الأطفال مع ظهور الأعراض. توحي بالتسمم ، على النحو الذي يحدده التاريخ والفحص البدني والتقييمات المعملية. في المجموع ، تم تضمين 100 مريض يستوفون هذه المعايير في التحليل.

**وكانت النتائج الرئيسية على النحو التالي:**

* ركزت الدراسة على حالات التسمم لدى الأطفال ، وتحليل خصائص المريض ، وأنواع السموم ، والعلامات الحيوية ، وطرق إزالة التلوث ، والعلاجات ، ومعايير الدم ، والارتباط بالنتائج.
* متوسط عمر المريض: 3.78 سنة. الفئات العمرية: الرضع (39٪) ، الأطفال الصغار (32٪) ، مرحلة ما قبل المدرسة (12٪) ، الأطفال في سن المدرسة (7٪) ، المراهقون (10٪).
* التوزيع الجنساني: 67٪ إناث ، 33٪ ذكور. متوسط الوزن: 15.78 كجم. المسكن الحضري: 59٪ ، الريف: 41٪.
* التأخير بين التسمم ودخول المستشفى: ساعة واحدة في المتوسط (المدى: 0.5 - 3 ساعات).
* أنواع السموم: أدوية / عقاقير (33٪) ، مواد سامة / سامة (14٪) ، مواد كيماوية (53٪).
* مواد التسمم الشائعة: الأدوية المضادة للذهان (7٪) ، كلوزابكس (بارز) ، ديباكين (7٪) ، إندرال (6٪) ، المواد المسببة للتآكل / الكاوية (7٪) ، الفينول (7٪) ، كلوريكس (5٪) ، الحشيش (8٪) ، التسمم الغذائي (3٪) ، PPD (3٪) ، مكملات الحديد (6٪) ، مبيدات القوارض (7٪) ، المبيدات الحشرية (6٪).
* العلامات الحيوية: معدل ضربات القلب (HR): 58-160 نبضة في الدقيقة (المتوسط: 93 نبضة في الدقيقة) ، معدل التنفس (RR): 14-46 نفسًا / دقيقة (المتوسط: 26 نفسًا / دقيقة) ، ضغط الدم الانقباضي (SBP): 67 -125 مم زئبق (المتوسط: 93 مم زئبق) ، ضغط الدم الانبساطي: 26-76 مم زئبق (المتوسط: 56 مم زئبق).
* الأعراض الشائعة: انخفاض ضغط الدم (25٪) ، بطء القلب (5٪) ، ضيق في التنفس (49٪) ، قيء (38٪) ، أعراض عصبية مختلفة.
* التطهير: غسيل المعدة (77٪) ، التخفيف (22٪).
* علاجات الترياق: الفحم المنشط (5٪) ، مضاد سم البوتوليوم (6٪) ، الأتروبين (17٪) ، ديفروكسامين (5٪) ، بياض البيض (5٪).
* علاج الأعراض: المنشطات (22٪) ، علاج الأعراض العامة (6٪).
* المضادات الحيوية تستخدم في 60٪ من الحالات.
* معلمات الدم ضمن النطاقات الطبيعية: الهيموغلوبين (Hb) ، عدد خلايا الدم البيضاء (WBCs) ، عدد خلايا الدم الحمراء (RBCs) ، متوسط حجم الجسم (MCV) ، متوسط الهيموغلوبين العضلي (MCH) ، الرقم الهيدروجيني ، الضغط الجزئي للأكسجين (PaO2) ) ، الضغط الجزئي لثاني أكسيد الكربون (PaCO2) ، البيكربونات (HCO3) ، الكرياتينين ، نيتروجين اليوريا في الدم (BUN) ، إنزيمات الكبد ، البيليروبين الكلي ، الصوديوم ، البوتاسيوم ، الكالسيوم.
* القبول في وحدة العناية المركزة: 44٪ مطلوب ، متوسط الإقامة: 2.14 يوم. البقاء في قسم طب الأطفال: 1.69 يوم ، وقت الخروج: 2.63 يوم.
* الارتباطات: يرتبط العمر بنوع السم ، وعلاقة الرضيع بالتسمم الدوائي ، وعلاقة الطفل الصغير بالتسمم بالمواد الكيميائية ، وعلاقة ما قبل المدرسة بالتسمم بالأدوية ، والارتباطات السلبية بين HR و RR و DBP و Hb و PaO2 مع وحدة العناية المركزة ، والعلاقة السلبية بين جنس الذكور و الوقت حتى التفريغ ، الارتباطات الإيجابية بين HR و RR و K مع الوقت حتى التفريغ.

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**جامعة جنوب الوادي**

التسمم بين الأطفال بمستشفى قنا الجامعى: دراسة باثر رجعى

رسالة

**توطئة للحصول على درجة الماجستير في الطب الشرعى والسموم االكلينكية**

**مقدمة من**

الطبيبة / رانا على سليم

**بكالوريوس الطب والجراحة**

تحت إشراف

الأستاذة الدكتورة/ سميرة محمد صالح

**استاذة الطب الشرعى والسموم االكلينكية – كلية طب قنا – جامعة جنوب الوادي**

الدكتور/ محمد عواد عبد العاطى

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الدكتورة/ هبة محمد قبيصى

**مدرس طب الاطفال – كلية طب قنا – جامعة جنوب الوادي**

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Introduction

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Review of Literature

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Patientsand Methods

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Results

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Discussion

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Summary

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Conclusion

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Recommendations

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Arabic Summary