



بسم الله الرحمن الرحيم

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Research submitted for partial fulfillment of master degree in
pediatric nursing

Research title:-

Assessment of Nurses Knowledge Regarding Initial Management of
Poisoning Among Children Under 5 Years in Alamal National
Hospital (December 2017 to April 2018)

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الآية

قال تعالى: (قل لو كان البحر مدادا لكلمات ربي لنفد البحر قبل أن تنفذ كلمات ربي و لو جئنا بمثله مددا (109) قل إنما أنا بشر مثلكم يوحى إليّ أنما إلهم إله واحد فمن كان يرجو لقاء ربه فليعمل عملا صالحا و لا يشرك بعبادة ربه أحدا (110))

صدق الله العظيم

سورة الكهف من الآية 109 الى الآية 110

DEDICATION

This research is dedicated to my mother who always helps me a lot. To my father who teaches me to be solid and patient.

To my sisters who always encourage me to the good.

To my dear husband.

To my friends who always support me.

To my colleagues for their assistance and encouragement.

For every one who stood by me in this research.

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List of content

Description	Page NO
الآية	-
Dedication	I
Acknowledgement	II
list of abbreviation	IV
List of table	V
Abstract	VII
ملخص الدراسة	VIII
Chapter one	
Introduction	1
Objectives	3
Justification	4
Chapter two	
Literature review	5
Chapter three	
Methodology	21
Chapter four	
Result	23
Chapter five	
Discussion	32
Conclusion	36
Recommendation	37
Chapter six	
References	38
Appendix	-

List of abbreviations

A&E	Accident and emergency
ABC	Airway, Breathing, Circulation
AC	Activated Charcoal
Bsc	Bachelors
CNS	Central Nervous System
ECG	Echo Cardio Gram
h	Hour
g	Gram
GI	Gastro Intestinal
GL	Gastric Lavage
ICU	Intensive care unit
IV	Intravenous
Kg	Kilogram
mg	Milligram
ml	Milliliter
NaCl	Sodium chloride
NaHco₃	Sodium bicarbonate
PH	Potential of Hydrogen
q4h	Every 4 hours
SPSS	statistical package for social science
VIP	Very important person
WBI	Whole Bowel Irrigation

List of tables

Table No	Title of table	Page No
(1)	Distribution of study group according to their socio demographic data(Gender, age, level of education and years of experience).	23
(2)	Distribution of study group according to their knowledge about immediate action when the poisonchild become in emergency situation.	24
(3)	distributionof study group according to their knowledge about golden time to empty stomach from poisoning contents.	24
(4)	distributionof study group according to their knowledge about decision to perform Gastrointestinal (GI) decontamination should be based upon.	25
(5)	distributionof study group according to their knowledge about effectiveness of gastrointestinal (GI) decontamination.	25
(6)	distributionof study group according totheir knowledge aboutemesis.	26
(7)	distributionof study group according totheir knowledge about indication of gastric lavage.	26
(8)	distributionof study group according totheir knowledge about gastric lavage.	27
(9)	distributionof study group according to their knowledge about activated charcoal(AC).	27
(10)	distributionof study group according to their knowledge about suitable management after 60 min from exposure poison.	28
(11)	distribution of study group according to their knowledge about anti dote management in poisoning.	28
(12)	distribution of study group according to their knowledge about prevention of poisoning.	29
(13)	distribution of study group according to their knowledge about drugs storage.	29

(14)	distribution of study group according to their knowledge about family education regarding prevention of poisoning.	30
(15)	distribution of study group according to their knowledge about teaching parents regarding emergency action of poisoning.	30
(16)	Correlation between years of experience and immediate action when the poison child become in emergency situation.	31

Abstract

The study was conducted in Khartoum state at Alamal National Hospital. it was carried out during the period from December 2017 to April 2018. the main objective of study was to assess the nurse's knowledge regarding initial management of poisoning among children under 5 years. the data were collected by a questionnaire . The data were analyzed using descriptive/ statistical analysis statistical package for social science [SPSS] program. the sample included 59 nurses. **Result:** the study has founded that with some results including that more than two third (66.1%) of study group preferred ABC{Airway, Breathing, Circulation} as an immediate action when child poisoning becomes an emergency. more than two third (72.9%) of study group chose gastric lavage as an effective method of gastrointestinal decontamination, less than half (44.1%) of the study group preferred activated charcoal in toxin adsorbed by activated charcoal and also less than half (42.4%)of the study group were knowledgeable about management of antidote. **Conclusion :** More than two third of study group were knowledgeable about immediate management of poisoning and majority of study group were knowledgeable about prevention of poisoning..And study result showed insignificant association between the years of experience and immediate action when the poison child become in emergency situation. The study also proposed some recommendations which may be useful if carefully applied

ملخص الدراسة

أجريت هذه الدراسة بولاية الخرطوم بمستشفى الأمل الوطني خلال الفترة من ديسمبر 2017 إلى أبريل 2018 وكان الهدف الأساسي هو تقييم معرفة الممرضات حول المعالجة الفورية للتسمم الأطفال تحت عمر خمس سنوات وجمعت البيانات عن طريق الإستبيان وحللت باستخدام برنامج الحزمة الإحصائية للدراسات الإجتماعية. إشملت عينة الدراسة على 59 ممرض توصلت الدراسة الى بعض النتائج مفادها أن أكثر من ثلثي (66.1%) مجموعة الدراسة فضلت طريقة إستخدام الممر الهوائي، التنفس، الدورة الدموية كطريقة مباشرة بمعالجة تسمم الأطفال في الحالات الطارئة. وقد إختار أكثر من ثلثي (72.9%) مجموعة الدراسة طريقة غسيل المعدة كطريقة فعالة لتفريق المعدة. هنالك أقل من نصف (44.1%) مجموعة الدراسة فضلت طريقة الفحم المنشط في حالة إمتصاص التسمم. و أيضا أقل من نصف (42.4%) مجموعة الدراسة كانوا على دراية حول معالجة الترياق . نتيجة الدراسة الحالية كشفت أن أكثر من ثلثي مجموعة الدراسة كانوا على دراية المعالجة الفورية للتسمم و كانت الأغلبية مجموعة الدراسة على دراية بالوقاية من التسمم . و أظهرت نتائج الدراسة وجود ارتباط غير مهم بين سنوات الخبرة و المعالجة الفورية عند قدوم الطفل المتسمم في الطوارئ. هذا وقد إقترحت الدراسة بعض التوصيات التي يمكن ان تكون مفيدة إذا تم تطبيقها بعناية.

Chapter One

Introduction

Objectives

Justification

1-1 Introduction

Poisoning is common reason for visits to emergency departments and for hospitalization worldwide and it is a cause of both morbidity and mortality in many parts of the world. The toxic agents associated with the morbidity and mortality varies from place to place due to the availability and use of various chemicals and other poisoning agent. Globally it is estimated that poisoning events are responsible for more than one million illnesses annually. The majority of acute poisoning cases seen in clinical practice especially in developing countries are as a result of deliberate and accidental ingestion and most of them present themselves at emergency department for their initial treatment ⁽¹⁾.

Acute Poisoning in children is still an important public health problem and represents a frequent cause of admission in emergency units. The incidence of childhood poisoning in various studies ranges from 0.33% to 7.6%. Poisoning is most commonly observed at 1-5 years of age and these children constitute 80% of all poisoning cases. At 2-3 years of age, house cleaning products cause most cases of poisoning, at 3-5 years of age, the medications kept in the cupboard or left open are the main causes of poisoning. The mortality rate due to poisoning is 3-5 % ⁽²⁾.

Management should focus on prevention of poisoning, but when poisoning does occur, give priority to airway, breathing, and circulation, treating alterations as discussed earlier in this chapter. Monitor vital signs frequently and provide supportive care. Few specific antidotes are available for medications or other toxins. Ipecac is rarely used in the health care setting to induce vomiting and is no longer recommended for use in the home setting. Gastric lavage, administration of activated charcoal (binds with the chemical substance in the bowel), or whole bowel irrigation with polyethylene glycol electrolyte solutions may be used. Occasionally, dialysis is required to lower the level of toxin in the bloodstream. The intervention is based on the source of the ingestion. For

example, activated charcoal is an effective method for preventing the absorption of many medications but is not effective in the case of an iron overdose.

Specific treatment of the poisoning will be determined when the toxin is identified and poison control is queried. Maintain ongoing assessment of the poisoned child because many toxins exhibit very late effects⁽³⁾.

1-2Objectives

1-2-1 General Objective

- To assess the nurses knowledge about the initial management of poisoning among children under 5 years.

1-2-2 Specific Objectives

- 1-To determine nurses knowledge towards the initial management poisoning .
- 2-To assess the nurse knowledge regarding prevention of poisoning.

1-3 Justification

Toddlers and pre -school children are potential victims because of their tendency to put any object within their reach into their mouths. In some children, this habit leads to **pica** (the ingestion of nonfood substances, such as laundry starch, clay, paper, and paint).All these habits may lead to children poisoning. For the abnormal habits of children the researcher needs to took about this point.

Chapter Tow

Literature Review

Literature review

2-1-1 POISONING

Exposure to poisons can occur by ingestion, inhalation, or skin or mucous membrane contact. This section focuses on the most common poisoning, toxic ingestions. Poisoning by ingestion refers to the oral intake of a harmful substance that, even in a small amount, can damage tissues, disturb body functions and, possibly, cause death. The substances may include such medications as acetaminophen and iron, household products, and plants.

Children are at risk for acute poisoning. According to the American Association of Poison Control Centers, in 2002, 65.7% of the 1.5 million reported poisoning cases occurred in children younger than age 20 years; over one-half (52%) of these cases occurred in children younger than age 6 years. More than 90% of poison exposures occur in the home⁽⁴⁾. Around a third of all a third of all calls to the united kingdom national poisons information services involve young children⁽¹²⁾. A common substance that can include cosmetics and cleaning products, herbal medicines, plants ⁽¹³⁾

2-1-2 Pathophysiology and Etiology

1. Improper or dangerous storage of potentially toxic substances.
2. Poor lighting _____ causes errors in reading.
3. Human factors:
 - a. Failure to read label properly.
 - b. Failure to return poisons to their proper place.
 - c. Failure to recognize the material as poisonous.
 - d. Lack of supervision of the child.

4. Toxin is ingested and may have limited local effects or continue to a stage of absorption and interference with metabolic processes and organ function.
5. Typically occurs in children younger than age 6 years, with a peak incidence between 12 and 24 months.
6. Acute poisoning may result in arrhythmias or permanent multiorgan damage due to initial loss of airway, breathing, circulation, and specific organ toxicity⁽⁴⁾.

<u>Agent</u>	<u>Symptoms</u>	<u>Treatment</u>
acetaminophen	Under 6 y—vomiting is the earliest sign Adolescents—vomiting, diaphoresis, general malaise. Liver damage can result in 48–96 h if not treated	Gastric lavage may be necessary. Administer acetylcysteine (Mucomyst) diluted with cola, fruit juice, or water if plasma level elevated. Mucomyst may be administered by gavage, especially because its odor of rotten eggs makes it objectionable.
acetylsalicylic acid (aspirin)	Hyperpnea (abnormal increase in depth and rate of breathing), metabolic acidosis, hyperventilation, tinnitus, and vertigo are initial symptoms. Dehydration, coma, convulsions, and death follow untreated heavy dosage.	Gastric lavage may be necessary. Activated charcoal may be administered. IV fluids, sodium bicarbonate to combat acidosis, and dialysis for renal failure may be necessary when large amounts are ingested.

<p>ibuprofen (Motrin, Advil)</p>	<p>Similar to aspirin; metabolic acidosis, GI bleeding, renal damage</p>	<p>Activated charcoal administered in emergency department. Observe for and treat GI bleeding. Electrolyte determination is done to detect acidosis. IV fluids are given.</p>
<p>ferrous sulfate (iron)</p>	<p>Vomiting, lethargy, diarrhea, weak rapid pulse, hypotension are common symptoms. Massive dose may produce shock; erosion of small intestine; black, tarry stools; bronchial pneumonia.</p>	<p>Deferoxamine, a chelating agent that combines with iron, may be used when child has ingested a toxic dose.</p>
<p>barbiturates</p>	<p>Respiratory, circulatory, and renal depression may occur. Child may become comatose</p>	<p>Establish airway; administer oxygen if needed; perform gastric lavage. Close observation of level of consciousness is needed.</p>
<p>Corrosives alkali: lye, bleaches acid: drain cleaners, toilet bowl cleaners, iodine, silver nitrate</p>	<p>Intense burning and pain with first mouthful; severe burns of mouth and esophageal tract; shock, possible death.</p>	<p><i>Never have child vomit.</i> <u>Alkali corrosives</u> are treated initially with quantities of water, diluted acid fruit juices, or diluted vinegar. <u>Acid corrosives</u> are treated with alkaline drinks such as milk, olive oil, mineral oil, or egg white. <i>Lavage or emetics are never used.</i></p>

		Continuing treatment includes antidotes, gastrostomy or IV feedings, and specialized care. A tracheostomy may be needed.
hydrocarbons kerosene, gasoline, furniture polish, lighter fluid, turpentine	Damage to the respiratory system is the primary concern. Vomiting often occurs spontaneously, possibly causing additional damage to the respiratory system. Pneumonia, bronchopneumonia, or lipid pneumonia may occur.	Emergency treatment and assessment are necessary. Vital signs are monitored; oxygen is administered as needed. Gastric lavage is performed only if the ingested substance contains other toxic chemicals that may threaten another body system such as the liver, kidneys, or cardiovascular system.

(5)

2-1-3 Management

Approach to Pediatric Toxicology

Resuscitation, risk assessment, supportive care, decontamination, enhanced elimination, antidotes and disposition.

A - Resuscitation

Resuscitation takes priority over decontamination and administration of antidotes (unless necessary for resuscitation e.g. NaHCO₃)

Airway: Intubation likely to be indicated in the following situations:

- Cardio-respiratory arrest
- Airway injury
 - Corrosive ingestion

- Decreased level of consciousness (GCS<8) or anticipated decrease in GCS
- Prolonged seizures
- Severe agitation or to facilitate treatment/investigations.

Breathing: Oxygen/ventilation if required

Circulation:

- Support perfusion as needed :IV fluids (20ml/kg 0.9% NaCl if shocked)
- Treatment of hypertension:Beta-blockers should be avoided in sympathomimetic toxicity⁽⁶⁾.

b-Risk Assessment

Risk assessment is a distinct cognitive process through which the clinician attempts to predict the likely clinical course and potential complications for the individual patient at that particular presentation.

Risk assessment should be quantitative and take into account agent, dose, time of ingestion, current clinical status and individual patient factors (for example, weight and co-morbidities).

The risk assessment is essential to determine the course of the poisoning and will guide treatment, investigations, period of observation and disposition ⁽⁶⁾.

Attempt to elucidate and clearly document:

- **What substance(s) have been ingested?**
- **How much of each substance has been ingested - including a calculation of amount of substance per kg?**
- **What time the ingestion occurred?**
- **What clinical features have occurred thus far?**
- **What other relevant patient factors (patient weight, other medical problems etc) are present?**

Then discuss with senior staff and/or consult poisons information.

If the ingestant is unknown: Consider all possible medications or toxins accessible in the house: all family members medications, non-pharmaceutical agents, drugs of abuse.

Focused clinical examination: especially important if ingestant is unknown

Screening tests: no tests are routine. These will be determined by risk assessment and may include: blood sugar level, ECG and other screening tests should be guided by risk assessment (other drug levels, blood gases and radiology)⁽⁶⁾.

c- Supportive care

For most children the only treatment required is good supportive care: Observation, hydration, nutrition, sedation and treatment of (hypo/hyperthermia, hypo/hyperglycemia, agitation and seizures)⁽⁶⁾.

d- Decontamination

This is rarely required and **must not distract** from resuscitation and supportive care.

Skin-- Wash off with soapy water.

Eyes-- Irrigate with 0.9% NaCl until pH is <8.0

GI tract include

- **Dilution** with milk/water is generally not recommended
- **Emesis** should never be induced⁽⁶⁾.
- **Gastric lavage** - is not recommended as no demonstrated benefit compared to a single dose of activated charcoal. GL may be considered for massive ingestion, up to 2-4 hours post-ingestion in potentially toxic overdoses⁽⁷⁾.
- **Activated charcoal (AC)** is rarely indicated in paediatric poisoning

The use of AC carries a risk of aspiration and subsequent chemical pneumonitis

- Indicated only if ALL of the following are true:
- ✓ Presentation within 1 hour of Ingestion

- ✓ Toxin is adsorbed by AC
- ✓ Patient is currently maintaining own airway and risk assessment determines that their GCS will remain normal
- ✓ Otherwise only give if airway is protected
- This substance has significant toxicity and is not easily treatable

Dose = 1g/kg

Can be made more palatable by mixing with ice-cream

Toxins not adsorbed by activated charcoal

- Acids/alkalis -Alcohols -Hydrocarbons
- Metals and ionic compounds (iron, potassium, lithium)⁽⁶⁾.

-Whole bowel irrigation (WBI)

Is very rarely performed

Indicated if:

- Ingestion of a slow release or extended release substance or a substance not bound to AC .
- Presentation prior to symptom onset .
- Ingestion is likely to result in significant toxicity despite supportive care or antidote therapy.
- Polyethylene glycol (Golytely) - 30ml/kg/h until effluent runs clear).

Possible indications for WBI

Iron (>60mg/kg elemental iron ingested)

Sustained release diltiazem/verapamil

Slow release potassium chloride⁽⁶⁾.

e- Enhanced Elimination

This is very rarely required and **must not distract** from resuscitation and supportive care

❖ Multidose activated charcoal

Can interrupt enterohepatic circulation and promote gut dialysis

- May be indicated with large ingestions of Carbamazepine, Dapsone, Phenobarbital, Quinine, Theophylline
- 1g/kg activated charcoal q4h⁽⁶⁾.

❖ **Urinary alkalinisation**

Alkalinisation promotes ionization of highly acidic drugs, therefore prevents reabsorption across tubule and increases renal excretion.

Indications :Salicylates (however if severe toxicity this should not detract from urgent haemodialysis) and Phenobarbitone

✓ **Administration**

-1-2 mmol/kg NaHCO₃ stat then titrate (can infuse further doses over 1-2 hours)

-Aim for urinary pH >7.5⁽⁶⁾.

❖ **Extracorporeal elimination (haemodialysis)**

-Haemodialysis is effective if toxin is water soluble, low molecular weight, not protein bound and has a small volume of distribution

-e.g. alcohols, lithium, chloral hydrate, amphetamine, camphor, heavy metals, salicylates, theophylline, valproate or carbamazepine

- Indications are based on drug levels, biochemistry and clinical symptoms.
- Intensive care required⁽⁶⁾.

f- **Antidotes**

- Pharmacological antagonists and chelating agents
- Only useful in a small minority of poisonings
- Administered when the potential therapeutic effect outweighs the adverse effects⁽⁶⁾.

- Examples of some available antidotes.

<u>Poisoning agent</u>	<u>Antidote(s)</u>
Paracetamol	<i>N</i> -acetylcysteine
Iron	Desferrioxamine
Opioids	Naloxone
Ethylene glycol, Methanol	Fomepizole, ethanol
Digoxin	Digoxin-specific antibody fragments
Cyanide	Hydroxycobalamin, dicobalt ditedate Sodium thiosulfate
Warfarin	Cryoprecipitate vitamin K
Benzodiazepines	Flumazenil
Beta blockers, calcium channel antagonists	Glucagon
Organophosphates	Pralidoxime
Lead	Sodium calcium edentate

(6)

g- Disposition

- Should be directed by risk assessment
- Some children can be safely discharged after brief or no observation.
- Others may require admission for ongoing observation and treatment⁽⁶⁾.

2-1-4 Primary Assessment in Acute Poisoning

1. Initial assessment should include ABCs evaluation, level of consciousness, vital signs, and neurologic assessment.
2. Assess for symptomatic effects of poisoning by systems.
 - A. GI _ common in metallic acid, alkali, and bacterial poisoning. These may include nausea and vomiting, diarrhea, abdominal pain or cramping, and anorexia.
 - B. CNS _ may include seizures (especially with CNS depressants, such as alcohol, chloral hydrate, barbiturates) and behavioral changes. Dilated or pinpoint pupils may be noted.

- c. Skin _ rashes, burns to the mouth, esophagus and stomach, eye inflammation, skin irritations, stains around the mouth, lesions of the mucous membranes. Cyanosis may be visible, especially with cyanide and strychnine.
- D. Cardiopulmonary _ dyspnea (especially with aspiration of hydrocarbons) and cardiopulmonary depression or arrest.
- E. Other _ odor around the mouth ⁽⁴⁾.

3. Identify the poison when possible.

- I. Determine the nature of the ingested substance from the child's history or by reading the label on the container. Nursing intervention may need to be implemented immediately after this assessment.
- II. Call the nearest poison control center or toxicology section of the medical examiner's office to identify the toxic ingredient and obtain recommendations for emergency treatment.
- III. Save vomitus, stool, and urine for analysis when the child reaches the hospital ⁽⁴⁾.

2-1-5 Primary Interventions

2-1-5-1 Removing the Poison from the Body

- 1. If the poison is non-pharmaceutical, have the child drink 100 to 200 mL of water. If a medication was ingested, do not dilute with water, as this may speed absorption.
- 2. For skin or eye contact, remove contaminated clothing and flush with water for 15 to 20 minutes.
- 3. For inhalation poisons, remove from the exposed site.
- 5. Administer gastric lavage. (This is indicated when vomiting is undesirable or impossible because of the child's condition or age, when

induction of vomiting has been unsuccessful, or when the poison is one that is rapidly absorbed [eg, cyanide]⁽⁴⁾.

- 6. Follow lavage with a cathartic and activated charcoal to hasten removal of the poison from the GI tract. Use cautiously with young children.
- 7. Be aware of the dangers associated with lavage.
 - Esophageal perforation ___ may occur in corrosive poisoning.
 - Gastric hemorrhage.
 - Impaired pulmonary function resulting from aspiration.
 - Cardiac arrest.
 - Seizures ___ may result from stimulation in strychnine ingestion⁽⁴⁾.

2-1-5-2 Reducing the Effect of the Poison by Administering an Antidote

1. An antidote may either react with the poison to prevent its absorption or counteract the effects of the poison after its absorption.
2. Not all poisons have specific antidotes.
3. Information about appropriate antidotes for specific poisons is available through all poison control centers. Antidotes for the most common poisons should be listed in the emergency department of the hospital.
4. Effectiveness of the antidote usually depends on the amount of time that elapses between ingestion of the poison and administration of the antidote⁽⁴⁾.
5. Activated charcoal absorbs all poisons except cyanide, if given within 1 hour of poisoning and after vomiting has occurred, in a dose of 30 to 50 g in a child and 50 to 100 g in an adolescent in 6 to 8 ounces (177 to 236 mL) of water with sweetener⁽⁴⁾.

2-1-5-3 Eliminating the Absorbed Poison

1. Force diuresis.
 - I. Administer large quantities of fluid either orally or I.V.
 - II. Carefully monitor intake and output.
2. Assist with kidney dialysis, which may be necessary if the child's kidneys are not functioning effectively.
3. Assist with exchange transfusion if this method is indicated for removing the poison⁽⁴⁾.

2-5-1-4 Providing Emotional Support

1. Remain calm and efficient while working rapidly.
2. Reassure the child and his family that therapeutic measures are being taken immediately.
3. Discourage anxious parents from holding, caressing, and overstimulating the child⁽⁴⁾.

2-1-5-5 Providing Supportive Care

1. Maintain adequate caloric, fluid, and vitamin intake. Oral fluids are preferable if they can be retained.
2. Avoid hypothermia or hyperthermia. (Control of body temperature is impaired in many types of poisoning.) Monitor the child's temperature frequently.
3. Observe closely for inflammation and tissue irritation.
 - A. This is especially important in ingestion of kerosene or other hydrocarbons, which cause chemical pneumonitis⁽⁴⁾.
 - B. Isolate the patient from other children, especially those with respiratory infections.

- c. Administer antibiotics as prescribed by the physician⁽⁴⁾.
- 4. Counsel parents who typically feel guilty about the accident.
 - A. Encourage parents to talk about the poisoning.
 - B. Emphasize how their quick action in getting treatment for the child has helped.
 - C. Discuss ways that they can be supportive to their child during the hospitalization.
 - D. Do not allow prolonged periods of self-incrimination to continue. Refer parents to a psychologist for assistance in resolving these feelings if necessary.
- 5. Involve the young child in therapeutic play to determine how he views the situation.
 - A. The child commonly sees nursing measures as punishments for misdeed involving the poisoning.
 - B. Explain treatment and correct misinterpretations in a manner appropriate for child's age.
- 6. Initiate a community health nursing referral for any childhood poisoning incident. A home assessment should be made to identify problems and provide proper poisoning prevention interventions and education⁽⁴⁾.

2-1-6 Family Education and Health Maintenance

2-1-6-1 Stressing Prevention

1. Information concerning poison prevention should be available on every hospital pediatric unit and during every child health care visit.
2. Teach the following precautions:
 - A. Keep medicines and poisons out of the reach of children.
 - B. Provide locked storage for highly toxic substances; select cabinet that is higher than child can reach or climb.

- C. Do not store poisons in the same areas as foods.
 - D. Make sure all containers are properly marked and labeled. Keep medicines, drugs, and household chemicals in their original containers⁽⁴⁾.
 - E. Teach children not to taste or eat unfamiliar substances.
 - F. Clean out medicine cabinets periodically.
 - G. Read all labels carefully before each use.
 - H. Do not give medicines prescribed for one child to another.
 - I. Never refer to drugs as candy or bribe children with such inducements.
 - J. Never give or take medications in the dark.
 - K. Encourage parents not to take medication in front of young children because children role-play adult behavior.
 - L. Suggest that mothers avoid keeping medications in their purses or on the kitchen table.
 - M. Keep baby creams and ointments away from young children.
 - N. Never puncture or heat aerosol containers.
 - O. Store lawn and garden pesticides in a separate place under lock and key outside of the house; do not store large quantities of cleaning products or pesticides⁽⁴⁾.
 - P. Keep all medicine and house hold products up and out of your child's reach .
 - Q. Use safety latches on drawers and cabinets where you keep objects that may be dangerous to your child⁽¹¹⁾ .
3. Advise parents to dispose of syrup of ipecac if they keep it in the household. According to the American Academy of Pediatrics, there is no evidence supporting improved outcomes of poisonings with the use of ipecac. In addition, there is potential for abuse of ipecac with bulimic or

anorexic teenagers; therefore, the recommendation for keeping ipecac on hand to induce vomiting has been rescinded⁽⁴⁾.

4. Tell family to keep a list of emergency telephone numbers including the poison control center, health care provider's number, nearest hospital, and ambulance service.
5. Reinforce the need for vigilance and consistent supervision of infants and young children due to their increased mobility, increased curiosity, and increased dexterity⁽⁴⁾.

2-1-6-2 Teaching Emergency Actions

1. Suspect poisoning with the occurrence of sudden, bizarre symptoms or peculiar behavior in toddlers and preschoolers.
2. Read label on the ingested product, or call the health care provider, hospital, or poison control center for instructions about treatment for the poisoning. Give all relevant information about the child, condition, and substance ingested.
3. Maintain an adequate airway in a child who is convulsing or who is not fully conscious.
4. Dilute the poison with 100 to 200 mL of water if advised⁽⁴⁾.
5. Transport the child promptly to the nearest medical facility.
 - A. Wrap the child in a blanket to prevent chilling.
 - B. Bring the container and any vomitus or urine to the hospital with the child.
6. Avoid excessive manipulation of the child.
7. Act promptly but calmly.
8. Do not assume the child is safe simply because the emesis shows no trace of the poison or because the child appears well. The poison may have

produced a delayed reaction or may have reached the small intestine where it is still being absorbed⁽⁴⁾.

2-2 Previous study

Study was conducted in Kenya found that (82%) of accident and emergency nurses participated in this study. The study found out that with higher nursing qualification and training on courses related to emergency care, knowledge and skills of A&E nurses on the initial management of acute poisoning is enhanced. A&E nurses with lower education level had a higher mean score of positive attitude compared with nurses with higher nursing qualification. Majority 60 (88.2%) of the A&E nurses indicated that, they required more training on the initial management of acute poisoning⁽¹⁾.

Study was conducted in Eskisehir Osmangazi University Hospital found that Two hundred eighteen children were referred to the emergency department due to acute poisoning. 48.4% of patients were boys and 51.6% were girls. The majority of cases were due to accidental poisoning (73.3% of all patients). Drugs were the most common agent causing the poisoning (48.3%), followed by ingestion of corrosive substance (23.1%) and carbon monoxide (CO) intoxication (12.5%). Tricyclic antidepressant was the most common drug (11.7%). Methylphenidate poisoning, the second common drug. 262 patients were discharged from hospital within 48 hours⁽²⁾.

Study was conducted in Cairo University Hospitals and found that all the studied sample (100%) had unsatisfactory knowledge and practice level (<75%) regarding detection and management of acute drug poisoning with a total mean knowledge and practice scores of (36.86 ± 2.046 & 28.20 ± 2.51) respectively. No significant correlations were found between age, years of experience, total knowledge scores and total practice scores. No significant statistical difference

was found in the total mean practice scores in relation to socio demographic characteristics. A high significant statistical difference was found in the mean practice scores in relation to qualifications⁽⁸⁾.

Study was conducted in is United Kingdom found a working knowledge of the management of poisoning in children essential for all those involved in acute peadiatric care. An estimated 52000 people attended accident and emergency departments with poisoning in 1997, the majority of whom were children⁽⁹⁾.

Study was conducted in Botswana and Gaborone found that the total number of children admitted because of any kind of poisoning during this time was 116. Of these, the most frequent cause of poisoning in young children was paraffin; 55or 47.4% of the 116 admission were for paraffin poisoning ⁽¹⁰⁾.

Chapter Three

Methodology

Methodology

3-1 Study design:

This is descriptive cross sectional study aimed to assess of nurses knowledge regarding initial management of poisoning among children under 5years in period extend from Dec2017 to Apr 2018.

3-2 Study Area

The study was conducted at Alamal National Hospitalin Khartoum state BahriKoper which initiate in 2008. North koperprison and western koper great it is provide many serves for population such as medicine, surgery, pediatric and obestrical services and anther services

3-3 Study setting :

The study was done on a Pediatric department include Emergency and pediatric ward and nursery and VIP in first floor and intensive care unit in second floor .

3-4 Study population:

all nurses work in Alamal Hospital during the period of study work in pediatric department .

3-5 Sampling

3-5-1Sampling technique:

All nurses during the period of study were taken (total cover sample)

3-5-2Sample size:

All nurses worked in pediatric department were taken (59).

3-6 Data collection

3-6-1 Data collection Tool :

The data were collected using questionnaire designed by the researcher which is depend on information in literature review .

the questionnaire content about three parts:-

part one: collected information about socio demographic data which included four question.

part two: collected information about knowledge of initial management of poisoning which included ten question.

part three: collected information about prevention of poisoning which included four question.

3-6-2Data collection Technique:

The questionnaire filled by researcher himself and every one on this study took about 10-15min in time.

3-7 Data analysis Technique:

the researcher interred the information in using SPSS{ statistical package for social science version 21 }and the data was organized and presented informs of tables.

3-8 Ethical considerations:

Approval letter were taken from University Of Shandi faculty of post graduated study to the hospital manager and consent were taken to the nurses to inform them about the aim of study.

Chapter Four

Results

Results

Descriptive statistics:

Part (1) socio demographic data:

Table (1): Distribution of study group according to their socio demographic data(Gender, age, level of education and years of experience).

(N=59)

Variables	NO.	%
Gender		
Male	5	8.5
Female	54	91.5
What is your age?		
(20-29 yrs)	55	93.2
(30-39 yrs)	2	3.4
(40- 49 yrs)	2	3.4
>50 years	0	00.0
Level of education		
certificate	4	6.8
diploma	1	1.7
degree Bsc	51	86.4
masters	3	5.1
Years of experience		
(1- 2 years)	32	54.2
Above(2-5 years)	22	37.3
Above(5-10 years)	2	3.4
>10 years	3	5.1

The above table showed that(91.5%) of study group were female. Also the resulted determined that (93.2%) of study group their age ranged between (20 – 29 years).

Resulted determined that (86.4%) of study group their level of education was degree Bsc. Resulted showed (54.2%) of study group their Years of experience ranged between (1-2 years).

Part (2) Knowledge about initial management of acute poisoning:

Table (2): Distribution of study group according to their knowledge about immediate action when the poisonchild become in emergency situation. (N=59)

Variable	NO.	%
ask about cause of poisoning	18	30.5
ABC	39	66.1
do gastric lavage	1	1.7
call the pediatrician	1	1.7

The above table showed that (66.1%) of study group chose ABC as immediate action in emergency.

Table (3): distribution of study group according to their knowledge about golden time to empty stomach from poisoning contents .

(N=59)

Variable	NO.	%
30 min	31	52.5
1 hour	14	23.7
an hour and half	7	11.9
2 hour	7	11.9

The above table showed that (52.5%) of study group chose 30min as golden time to reduce poisoning contents.

Table (4): distribution of study group according to their knowledge about decision to perform Gastrointestinal (GI) decontamination should be based upon:

(N=59)

Variable	NO.	%
the specific poison(s) ingested	21	35.6
the predicted severity of the poison	11	18.6
time from ingestion to presentation	16	27.1
amount of poisons	11	18.6

The above table showed that (35.6%) of study group chose the specific poison(s) ingested .

Table (5): distribution of study group according to their knowledge about effectiveness of gastrointestinal (GI) decontamination :

(N=59)

Variable	NO.	%
gastric lavage	43	72.9
emesis	8	13.6
activated charcoal (AC)	4	6.8
whole bowel irrigation (WBI)	4	6.8

The above table showed that (72.9%) of study group chose gastric lavage was effectiveness of gastrointestinal (GI) decontamination.

Table (6): distribution of study group according to their knowledge about indication of emesis: (N=59)

Variable	NO.	%
conscious patient in cases poisoning like kerosene	8	13.6
conscious patient who has ingested a substantial amount of a toxic substance within 60 minutes of presentation	38	64.4
is it permissible after 1 hour	6	10.2
induce to unconscious patient within 60 min of presentation	7	11.9

The above table showed that (64.4%) of study group chose conscious patient who has ingested a substantial amount of a toxic substance within 60 minutes of presentation as indicated for emesis.

Table (7): distribution of study group according to their knowledge about indication of gastric lavage: (N=59)

Variable	NO.	%
patients who have ingested kerosene or corrosive substances within an hour of presentation	21	35.6
patient present within 1 hour who ingested medication and pesticide poisoning	20	33.9
useful after 1 hour from ingest of poison	9	15.3
is not useful in all patient	9	15.3

The above table showed that (35,6%) of study group chose patients who have ingested kerosene or corrosive substances within an hour of presentation.

Table (8): distribution of study group according to their knowledge about gastric lavage:

(N=59)

Variable	NO.	%
useful more than activated charcoal (AC)	9	15.3
the volume of lavage fluid aspirated should approximate to the amount of fluid given	25	42.4
the effectiveness of gastric lavage increases as the time between ingestion and treatment increases	16	27.1
gastric lavage works for all cases of poisoning	9	15.3

The above table showed that (42.4%) of study group chose the volume of lavage fluid aspirated should approximate to the amount of fluid given.

Table (9): distribution of study group according to their knowledge about activated charcoal(AC):

(N=59)

Variable	NO.	%
AC risk of aspiration and subsequent chemical pneumonitis	20	33.9
suitable in patient with GCS 6 and airway is not protect	6	10.2
use only if toxin adsorbed by activated charcoal	26	44.1
presentation within 2 hour of ingestion	7	11.9

The above table showed that (44.1%) of study group chose activated charcoal use only if toxin adsorbed.

Table (10): distribution of study group according to their knowledge about suitable management after 60 min from exposure poison :

(N=59)

Variable	NO.	%
administer antidote	25	42.4
administer dose activated charcoal with juice	16	27.1
whole bowel irrigation	11	18.6
hemodialysis	7	11.9

The above table showed that (42.4%) of study group chose administer antidote was suitable management after 60 min .

Table (11): distribution of study group according to their knowledge about anti dote management in poisoning :

(N=59)

Variable	NO.	%
suitable for all cases of poisoning	4	6.8
available for all ER pediatric have specific antidote	21	35.6
anti-dote has no contraindication	9	15.3
administered when the potential therapeutic effect outweighs the adverse effects	25	42.4

The above table showed that (42.4%) of study group were administered antidote when the potential therapeutic effect outweighs the adverse effects.

Part (3) Knowledge about prevention of poisoning:

Table (12): distribution of study group according to their knowledge about prevention of poisoning:

(N=59)

	NO.	%
Teach children not to taste or eat unfamiliar substances	19	32.2
first step in preventing poisoning is strong medicine, chemicals and cleaners up high in locked cupboard	35	59.3
placing drugs into other containers than their own container	3	5.1
keeping chemical such as bleach,pesticide,kerosene in the kitchen	2	3.4

The above table showed that (59.3%) of study group were preventing poisoning by first step is strong medicine, chemicals and cleaners up high in locked cupboard.

Table (13): distribution of study group according to their knowledge about drugs storage:

(N=59)

Variable	NO.	%
refrigerator	40	67.8
on the table	11	18.6
bathroom	4	6.8
on the surface of the ground	4	6.8

The above table showed that (67.8%) of study group were storage drugs in refrigerator.

Table (14): distribution of study group according to their knowledge about family education regarding prevention of poisoning:

(N=59)

Variable	NO.	%
Tell family to keep a list of emergency telephone numbers including the poison control center, health care providers number	14	23.7
Reinforce the need for supervision of young children due to their increased mobility	5	8.5
Advice parents to safe storage of medications, out of reach of children to decrease the incidence of childhood poisoning	26	44.1
Teaching parents about emergency action of poisoning	14	23.7

The above table showed that (44.1%) of study group chose advice parents to safe storage of medications, out of reach of children to decrease the incidence of childhood poisoning.

Table (15): distribution of study group according to their knowledge about teaching parents regarding emergency action of poisoning:

(N=59)

Variable	NO.	%
is useful to decrease risk of poisoning	42	71.2
has no effect on management poisoning	2	3.4
help in management of poisoning	15	25.4

The above table showed that (71.2%) of study group chose is useful to decrease risk of poisoning.

Table (16) Correlation between years of experience and immediate action when the poisonchild become in emergency situation

Symmetric Measures

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Interval by Interval	Pearson's R	-.080	.161	-.604	.548(c)
Ordinal by Ordinal	Spearman Correlation	-.195	.140	-1.499	.139(c)
N of Valid Cases		59			

Above table (16) showed correlation between years of experience and immediate action of poisoning management (p-value 0.140 $0.140 > 0.05$) there was no significant relationship between the years of experience and immediate action when the poisonchild become in emergency situation

Chapter Five

Discussion

Conclusion

Recommendations

5-1 Discussion

The study was conducted in Khartoum state at Alamal National Hospital, in Period extend from December 2017 to April2018aimed to assess the nurse's knowledge regarding initial management of poisoning among children under 5 years.

Regarding sociodemographic data , the study showed that :most of study group (86.4%) with degree Bsc because most of nursing student in nursing science college were Bsc.

Regarding the years of experience the result showed that more than half (54.2%)were (1-2 years), more than third (37.3%) were above (2-5 years),(3.4%)were above(5-10 years) and (5.1%)were >10 years.

Regarding the knowledge of initial management on poisoning , the study showed that two third (66.1%) of the study group preferred to do ABC firstbecause ignoring the ABC may lead to permanent multiorgan damage⁽⁴⁾ ,while less than third(30.5%) preferred to ask about the cause of poisoning, and the rest (15%) preferred to do gastric lavage and the same percent call the pediatrician. This agree with a study conducted in Kenya ⁽¹⁾ which found (94.1%) of nurses said ABC was a priority at emergency.

The study result showed insignificant association between years of experience and initial action of poisoning management (p-value 0.140).

Only less than third (23.7%) of study group were knowledgeable about suitable time for emptying contents of poisoning from stomach.This agree with literature review ⁽⁷⁾ which state that: gastric lavage may be considered for massive ingestion, up to 2-4 hours post-ingestion in potentially toxic overdoses.

The present study showed that most(81,3%) of study group were knowledgeable about the decision to perform Gastrointestinal (GI) decontamination should be based uponof specific poison(s) ingested and time from ingestion to presentation and predicted severity of the poison. Almost agree with the study conducted by Rotto, Jameset, al⁽¹⁾in Kenya which found (88.2%). More than two third(72.9%)were knowledgeable about thegastric lavage was effectiveness of GI decontamination.This result agree with the study conducted by Rotto, Jameset, al⁽¹⁾which found that (73.5%) of nurses the gastric lavage was effectiveness.More than third (42.4 %) of them were knowledgeable about the volume of lavage fluid aspirated should approximate to the amount of fluid given. This result disagreed with the study conducted by Rotto, Jameset, al⁽¹⁾which found that(76.5%)of the nurses preferred the volume of lavage fluid aspirated should approximate to the amount of fluid given.

Also the study determined that: less than two third(64,4%) of study group were knowledgeable about emesis done in conscious patient who has ingested a substantial amount of a toxic substance within 60 minutes of presentation , This result agree with the study conducted by Rotto, Jameset, al⁽¹⁾ in kenyawhich he found that (55.9%) of the nurses preferred the emesis done in conscious patient who has ingested a substantial amount of a toxic substance within 60 minutes of presentation, while less than third (13.6%) of them not knowledgeable about emesis done for conscious patient in cases of poisoning like kerosene.

The present study showed that third (33.9%) of thestudy group were knowledgeable about the gastric lavage done for patient who ingested medication and pesticide poisoning should be presented within one hour , while more than third (35.6%) of study group not knowledgeable about gastric lavage done forpatients who have ingested kerosene or corrosive substances within an

hour of presentation. This result disagreed with the study of Rotto, James ...et, al⁽¹⁾ which found that (69.1%) gastric lavage should be done for patients who have ingested kerosene or corrosive substances within an hour of presentation .

Regarding the knowledge about indication of activated Charcoal the study revealed that less than half (44.1%) of study group were knowledgeable about it and their use , one third(33,9%) of study group were knowledgeable about complication , and the rest of percentages of study group were not knowledgeable about AC . this disagreed with literaturereview⁽⁶⁾ which state that: indication of activated charcoal include Presentation within 1 hour of Ingestion, Patient is currently maintaining own airway and risk assessment determines that their GCS will remain normal and otherwise only give if airway is protected.

Most of study group were knowledgeable about suitable management after one hour of ingest poisoning (heamodialysis, administer antidote, administer multi dose activated charcoal with juice and whole bowel irrigation). More than half (56,5%) of study group were knowledgeable about management of antidote in poisoning . This agrees with literature review ⁽⁶⁾which state that :Administered when the potential therapeutic effect outweighs the adverse effects.

Majority (91.5%) of study group were knowledgeable about prevent poisoning. This agree with literature review ⁽⁴⁾ which state that : first step in preventing poisoning is strong medicine, chemicals and cleaners up high in locked cupboard and teach children not to taste or eat un familiar substance. More than two third (67.8%) of study group were knowledge about storage drugs. Majority of study group were knowledge family education on poisoning. Almost agree with literature review ⁽²⁾ which state that : Advice parents to safe storage of medications, out of reach of children to decrease the incidence of childhood poisoning , Reinforce the need for supervision of young children due

to their increased mobility , tell family to keep a list of emergency telephone numbers including the poison control center and health care providers number and teaching parents about emergency action of poisoning. Majority (96.6%) of study group had right action to teach parent about emergency action of poisoning was useful to decrease risk of poisoning.

5-2 Conclusion

The study was conducted in Khartoum state at Alamal National Hospital, in Period extend from December 2017 to April 2018 aimed to assess the nurse's knowledge regarding initial management of poisoning among children under 5 years. The study concluded the following:

More than two third of study group were knowledgeable about initial management of poisoning, and majority of study group were knowledgeable about prevention poisoning. And study was found no correlation between years of experience and immediate action when the poison child become in emergency situation with (p value 0.140)

5-3 Recommendations

The study was conducted in Khartoum state at Alamal National Hospital, in Period extend from December 2017 to April2018 aimed to assess the nurse's knowledge regarding initial management of poisoning among children under 5 years. And study recommended the following:

A- For Hospital Manager:

- Provide all the necessary tools, equipment and materials of child poisoning management.
- Provide refreshment training courses about poisoning management to the nurses from time to time.

B- For Nurses:

- The study recommends receiving an educational programs and special courses in child poisoning management.
- increasing their knowledge about gut decontamination and it is indication, effectiveness and contraindication.
- Encouragement of reading and taking training courses about poisoning management

Chapter six

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Appendixes

- 2- Goldine time consider when managing poisoning cases in ER pediatric
- a- 30 min
 - b- 1 hour
 - c- an hour and half
 - d- 2 hour
- 3- The decision to perform Gastrointestinal (GI) decontamination should be based upon:
- a- the specific poison(s) ingested
 - b- the predicted severity of the poison.
 - c- time from ingestion to presentation
 - d- amount of poisoning
- 4- Effectiveness of Gastrointestinal (GI) decontamination is
- a- gastric lavage
 - b- emesis
 - c- activated charcoal (AC)
 - d- whole bowel irrigation (WBI)
- 5- Emesis is to consider
- a- conscious patient in cases poisoning like kerosene
 - b- conscious patient who has ingested a substantial amount of a toxic substance within 60 minutes of presentation.
 - c- is it permissible after 1 hour
 - d- induce to unconscious patient within 60 min of presentation
- 6- Gastric lavage is indicated
- a- patients who have ingested kerosene or corrosive substances within an hour of presentation.
 - b- patient present within 1 hour who ingested medication and pesticide poisoning
 - c- useful after 1 hour from ingest of poison
 - d- is not useful in all patient

7- About gastric lavage :

a- useful more than Activated Charcoal (AC)

b- The volume of lavage fluid aspirated should approximate to the amount of fluid given.

c- The effectiveness of gastric lavage increases as the time between ingestion and treatment increases.

d- gastric lavage works for all cases of poisoning

8- Activated Charcoal (AC):

a-AC risk of aspiration and subsequent chemical pneumonitis

b- suitable in patient with GCS 6 and airway is not protect

c- use only if toxin adsorbed by activated charcoal

d- presentation within 2 hour of ingestion

9- After 60 min from ingest poison the suitable management for patient :

a- administer antidote

b- administer dose activated charcoal with juice

c- whole bowel irrigation

d- heamodialysis

10- Anti dote in poisoning managing:

a- suitable for all cases of poisoning

b- available for all ER pediatric have specific antidote

c- anti dote has no contraindication

d- administered when the potential therapeutic effect outweighs the adverse effects

Section C: knowledge about prevention of poisoning :

1- can prevent poisoning by :

a- Teach children not to taste or eat unfamiliar substances.

b- First step in preventing poisoning is strong medicine, chemicals and cleaners up high in locked cupboard.

C- Placing drugs into other containers than their own container.

d- keeping chemical such as bleach, pesticide, kerosene in the kitchen

2- Drugs storage places

a- refrigerator

b- on the table

c- bathroom

d- on the surface of the ground

3- what advise family about poisoning

a- Tell family to keep a list of emergency telephone numbers including the poison control center, health care provider's number.

b- Reinforce the need for supervision of young children due to their increased mobility.

c- advise parents to safe storage of medications , out of reach of children to decrease the incidence of childhood poisoning.

d- teaching parents about emergency action of poisoning .

4- Teaching parents regarding emergency action of poisoning:

a- is useful to decrease risk of poisoning

b- has no effect on management poisoning

c- help in management of poisoning