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Diarrheal Diseases Among Children Under Five Years

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قَالَ تَعَالَىَّ:

“إِنَّا خَلَقْنَا الأُلْوَيْنَ مِنْ نُوحُوتٍ رِسَالَتُهُ وَأَطْلَسْنَا بِهِ مَحَيْطَهُ الْأَصْبَحُ وَأَصْطَبْنَاهُ فِي رِيْوَانِهِ”

سُورَةٌ: الإنسان الآية: 2

صدق الله العظيم
<table>
<thead>
<tr>
<th>CONTENTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedication</td>
<td>I</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>II</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>III</td>
</tr>
<tr>
<td>Abstract (English)</td>
<td>IV</td>
</tr>
<tr>
<td>Abstract (Arabic)</td>
<td>V</td>
</tr>
<tr>
<td>List of figures</td>
<td>VI  - VII</td>
</tr>
<tr>
<td>List of tables</td>
<td>VIII</td>
</tr>
<tr>
<td>Chapter one</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Justification</td>
<td>2</td>
</tr>
<tr>
<td>Objectives</td>
<td>3</td>
</tr>
<tr>
<td>Chapter two</td>
<td></td>
</tr>
<tr>
<td>Definition</td>
<td>4</td>
</tr>
<tr>
<td>Clinical type</td>
<td>4</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>6</td>
</tr>
<tr>
<td>Etiology</td>
<td>10</td>
</tr>
<tr>
<td>Pathogenesis</td>
<td>12</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>14</td>
</tr>
<tr>
<td>Treatment</td>
<td>16</td>
</tr>
<tr>
<td>Assessment of dehydration</td>
<td>16</td>
</tr>
<tr>
<td>ORS</td>
<td>19</td>
</tr>
<tr>
<td>Complications</td>
<td>20</td>
</tr>
<tr>
<td>- Drug used</td>
<td>24</td>
</tr>
<tr>
<td>Prevention</td>
<td>26</td>
</tr>
<tr>
<td>CCD Programme</td>
<td>27</td>
</tr>
</tbody>
</table>
Chapter three
Figures and tables 1 – 23
Methodology 24
Obstacles 25
Chapter four
Results 26 – 27
Chapter five
Discussion 28
Chapter six
Conclusion 33
Recommendation 34
Chapter seven
References 35
DEDICATION

TO THOSE WHO OFFER US THE LIFE,

OUR FATHERS AND MOTHERS.

TO ALL MEMBERS IN OUR FAMILIES.

TO THE EGO DR. MOHAMMED SEED

AHMED.

TO EVERY ONE WHO TEACH US AWARD.
ACKNOWLEDGEMENT

THANKS FOR ALLAH, WHO ALWAYS WITH US.
WE WISH TO EXPRESS OUR APPRECIATION TO THOSE WHO HELP US DURING OUR STUDY.
FIRST WE ARE GREATLY INDEBTED TO DR: ABDALLA AND DR KALII IN COMMUNITY MEDICINE DEPARTMENT, RED SEA UNIVERSITY FOR THEIR UNLIMITED HELP AND ENCOURAGEMENT.

WE WOULD LIKE TO EXPRESS OUR DEEP THANKS AND APPRECIATION TO DR: MOHAMMED SEED AHMED FOR HIS GUIDELINES AND VALUATED ADVICE.
SPECIAL THANKS TO TEAMWORK IN PEDIATRIC AND POLICE HOSPITALS AND ALL MOTHERS OF BABIES FOR THEIR CO-OPERATION.

WE WOULD LIKE TO THANKS ELHAM ABD ALRAHMAN AND KHADEGA HESAIN ALI FOR THEIR HELP
FINALLY OUR THANKS ARE EXTENDED TO EVERY BODY WHO HELP US IN PREPARATION OF THIS STUDY.
ABBREVIATION

AIDS : Acquired Immune Deficiency Syndrome .
CDD : Control of diarrheal disease .
E.coli : Escherichia coli .
E . histolytica : Entamoeba histolytica .
e.g : Example
e.t.c : and so on .
G . lamblia : Giardia lamblia .
i.e : that is to say
I.M : Intra muscular.
I.V : Intra venous .
K : Potassium .
Kg : Kilo gram .
M.g : Melligram .
M L : Melliletter .
Na : Sodium .
Nacl : Sodium chloride .
ORS : Oral rehydration solution .

V. cholera : vibrio cholera
WHO : WORLD Health Organization .
ABSTRACT

This is descriptive study was carried out in the period from July to October 2013 about factors contributing to diarrheal disease among children under five years in both police and pediatrics hospitals, in Port Sudan locality.

The aim of this study is to identify the factors contributing diarrheal disease in children under five years and this was done by questioning the mothers of children affected, which found in both sections and outpatient clinics, of 80 cases.

The data was collected by questionnaire and analyzed by specialized directions. The data that was analyzed, revealed that the most affected age group was under 2 years, which is due to poor sanitation and water hygiene in community and lack of awareness of the mothers.

The study recommended that: the importance of health education to the mothers to improve their general knowledge about the methods to manage, treat from diarrheal disease, and prevention of complications later on.

The study show that the affected group from 6 month - 2 years (43.8 %), the female is affected (56.3 %) more than male (43.7 %).

The study show that 50% of mothers not educated, 27.5% of mothers give artificial feeding, and 38.8 % of mothers gives water to the child since the first day, the source of water in 53.8 % is from the water sealer (Saga), and 61.3 don’t boil it.

The study show that 23.8 % of children are not vaccinated, and 75 % of mothers use O.R.S during diarrheal attack.
ملخص الدراسة

هذه دراسة وصفية أجريت في الفترة من شهر يوليو إلى شهر أكتوبر من عام 2013، وكان موضوع الدراسة متضمناً لأسباب الإسهالات في الفترة العمرية دون سن الخامسة، في كل من مستشفى الشرطة وحوادث الأطفال، بمحليه بور تسودان.

تمت الدراسة بالمحavra مع أمهات الأطفال المصابين بالإسهالات، المتواجدين في كل من العنايب والعيادات الخارجية، الذين بلغ عددهم 80 حالة مصابة.

تمت عملية جمع المعلومات باستخدام ورقه استبيان وحلت هذه البيانات بواسطة الجهات المختصة. وبعد عملية تحليل هذه البيانات تم التوصل إلى أن أكثر الفتيات عرضة للإصابة بالإسهالات هم الأطفال دون العاشر من ذلك نسبة لسوء الصرف الصحي ونفاذ المياة ونقص الوعي الصحي في المجتمع عامة وأمهات خاصة.

الوصيات الأساسية التي يجب تبنيها هي الأتي: الرقى بمستوى التثقيفي الصحي، وخاصة عند الأمهات وعدد الطبقات ذات الدخل المحدود، بإقامة دورات تثقيفية حول الإسهالات ومحصلة منها إذا لم تتبع الخطوات والإجراءات السليمة في معالجتها والحد من خطورة مضاعفاتها.

كشفت الدراسة أن نسبة المصابين من عمراً (6 شهور - سنتين)، 43.8% ونسبة الإناث من المصابين أكثر من الذكور بنسبة 65.3% للإناث و43.7% للذكور، وأن 50% من الأمهات غير متعلمات و أن 27.5% جمعوا بين الرضاعة الطبيعية والتغذية الخارجية

38.8% من المصابين أعطوا الماء من الليم الأول بعد الولادة، 53.8% يستخدمون مياه السقا، 61.3% لا يقومون بغلي الماء و 23.8% غير مطعمين و 75% يعطون أطفالهم أملاح التروية عند الإصابة.
List Of Figures

Fig [ 1 ] :
Show distribution of diarrhea according to age

Fig [ 2 ] :
Show distribution of diarrhea according to residence.

Fig [ 3 ] :
Show distribution of diarrhea according to gender.

Fig [ 4 ] :
Represent the level of education of the mother.

Fig [ 5 ] :
Show socioeconomic status.

Fig [ 6 ] :
Show children whom had normal breast feeding.

Fig [ 7 ] :
Show the importance of breast feeding.

Fig [ 8 ] :
Show mix between normal and artificial feeding.

Fig [ 9 ] :
Show usage of food in addition to lactation.

Fig [ 10 ] :
Show the type of food.

Fig [ 11 ] :
Show the time which mother gave water.
Fig [ 12 ]:
Show the source of water.

Fig [ 13 ]:
Reflect the mother whom boiling water.

Fig [ 14 ]:
Reflect the usage of bottles.

Fig [ 15 ]:
Reflect the storage of food.

Fig [ 16 ]:
Reflect hands washing before eating.

Fig [ 17 ]:
Show the time of weaning.

Fig [ 18 ]:
Show the history of vaccination.

Fig [ 19 ]:
Reflect the mother knowledge of diarrhea.

Fig [ 20 ]:
Show children with previous history of diarrhea.

Fig [ 21 ]:
Show the mother attitude during diarrheal attack.

Fig [ 22 ]:
Show R.O.S usage during diarrheal attack.

Fig [ 23 ]
Show the place of management during diarrheal attack.
List of Tables

Table [1]:
Show distribution of diarrhea according to age

Table [2]:
Show distribution of diarrhea according to residence.

Table [3]:
Show distribution of diarrhea according to gender.

Table [4]:
Represent the level of education of the mother.

Table [5]:
Show socioeconomic status.

Table [6]:
Show children whom had normal breast feeding.

Table [7]:
Show the importance of breast feeding.

Table [8]:
Show mix between normal and artificial feeding.

Table [9]:
Show usage of food in addition to lactation.

Table [10]
Show the type of food.

Table [11]:
Show the time which mother gave water.

Table [12]:
Show the source of water.

Table [ 13 ]:
Reflect the mother whom boiling water.

Table [ 14 ]:
Reflect the usage of bottles.

Table [ 15 ]:
Reflect the storage of food.

Table [ 16 ]:
Reflect hands washing before eating.

Table [ 17 ]:
Show the time of weaning.

Table [ 18 ]:
Show the history of vaccination.

Table [ 19 ]:
Reflect the mother knowledge of diarrhea.

Table [ 20 ]:
Show children with previous history of diarrhea.

Table [ 21 ]:
Show the mother attitude during diarrheal attack.

Table [ 22 ]:
Show R.O.S usage during diarrheal attack.

Table [ 23 ]
Show the place of management during diarrheal attack.
1-1 Introduction

Diarrhea is a leading cause of illnesses and death among children in developing countries, more than one in ten, a recent report noticed that around 4 billion cases of diarrhea are recorded each year, leading to 2.2 million case of deaths, children deaths 800 thousand each year only 44% of children with diarrhea in developing countries receive treatment, but there are a little progress since the year 2000.

Mostly, among children under 5 years (15% of all child deaths)

80% of deaths due to diarrhea in the first 2 years of life resulted from loss of fluids and electrolyte. (1)

Diarrhea is an important cause of malnutrition, those occur because patient with diarrhea eat less and their ability to absorb nutrients is reduced, moreover, their nutrient requirements increase as a result of the infection, so each episode of diarrhea contributed to malnutrition when an episode is prolonged it has a negative impact on growth and immunity resulting in more illnesses

Diarrhea disease also, represents an economic burden for developing countries, in many countries more than one third of hospital beds for children are occupied by patients with diarrhea, these patients are often treated with expensive intravenous fluids, and ineffective drugs although diarrheal disease is usually less harmful in adults than children, but it can affect countries economy by reducing health of its workers (Manuals, 1994)

(1) www.e-medicine.com/
Justification:

The diarrhoeal diseases and resulting dehydration responsible for 2.2 million children deaths especially in developing countries and the Sudan one of them. In Red sea area and due to environmental and other factors the diarrhoeal diseases are common health problem particularly in children and infants which it is associated with high mortality rate due to it is complication especially dehydration.

The affected children come to hospital in late stage of the disease after their families do all others traditional methods and bad taboos, so all these problems face us in hospital and face all medical workers to deal with all these problem. This problem motivate us to do our research in acute diarrhoeal diseases in children under five years.
Objectives :-

General objectives:
To Study socioeconomic factors contributing to outcome of Diarrhocial disease among children under five years.

Specific objective:
1- To relate the age and sex of children, residents, economic status and educational status of mother to diarrhoreal disease and their outcome.
2- To determine the effect of lactation of breast feeding and substitution feeding early weaning on diarrhoreal disease and their outcome.
3- To assess knowledge, attitude and practice of mothers toward diarrhoreal disease.
4- To identify the role of water source and food safety on the occurrence of diarrhoreal disease.
5- To show stool general results.
CHAPTER TWO
2- literature review

2-1 definitions:

Diarrhea from Greek means (flowing through), is the condition of having three or more loose or liquid bowl movements per day. {internet}

Diarrhea is usually a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral and parasitic organisms. {internet}

Diarrhea is used to describe loose or watery stool, excessively frequent stools, that are large in volume. {essential of pediatrics}

Diarrhea is an increase in the fluidity, volume and frequency of stool relative to the usual habits of each individual. {Nasser Gamal, 2011}

2-2 clinical types:

There are four clinical types of diarrhea:

A- Acute watery diarrhea:

This type of diarrhea lasts less than two weeks. The most common cause of diarrhea is Rota virus, adenovirus, food poisoning, water contaminated by bacteria or other germs.

Also there is uncommon cause in children, for example: colitis (inflammation of the gut).
The risk of this type is dehydration. Associated symptoms abdominal cramps (tummy) are
Common, also vomiting, fever, aching limbs and headache. {internet}

B- Dysentery acute bloody diarrhea:

Is an inflammatory disorder of the intestine, especially of the colon, that results in severe diarrhea containing blood and mucus in the feces, associated with fever, abdominal pain

Rectal tenesmus. Causes of this type is Entameba histoltica, E.coli, campylobacter jejenii

And shigella. the main complication of this type are intestinal damage, sepsis, malnutrition

And dehydration. {internet}

C- Persistent diarrhea:

This type of diarrhea lasts for 14 days or longer. Also known as chronic diarrhea, caused by

A wide range of problems, some of the most common causes include irritable bowel syndrome,

Inflammatory bowel disease, malabsorption syndromes, chronic infections and endocrine disorders. The main complications are dehydration, electrolyte disturbance, orthostatic hypotension
with syncope, severe weakness, shock, renal failure and coma. {internet}

D- Diarrhea with severe malnutrition:

As Marasmus and Kwashiorkor, the main dangerous severe dehydration, severe systemic infection, vitamins and mineral deficiency. {manual – 1994}

2-3 Epidemiology:–

2-3-1 Agent:

The infectious agent that causes diarrhea are usually spread feco-oral route. Agent are:

1- Bacterial:

Common bacterial causes include Campylobacter, Salmonella, Shigella and E.coli.

Diarrhea caused by bacteria can be common when traveling in developing countries and is often called traveler's diarrhea. {internet}

2- Viruses:

Rota virus is a common cause of acute childhood diarrhea, other causes include cytomegalovirus and viral hepatitis. {internet}

3- Protozoa:

Less common caused by Giardia Lamblia and Entameba histolytica, in addition to
Cryptosporidium. \{Nasser, 2003\}

2-3-2 **Host:**

Host factors means those increase susceptibility to diarrhea.

1/ **Age:**

Most diarrheal episodes occurring during the first two years of life, incidence is higher in age.

6-11 months and when weaning occurs due to introduces of food and water which may be

Contaminated with fecal bacteria, most enteric pathogen stimulate at least partial immunity.

Against repeated infections or illness which helps to explain the declining incidence disease.

In older children and adult. \{manual, 1994\}

2/ **Failing of breast feeding at least two year of age:**

Breast milk contains antibodies that protect against certain type of diarrheal disease such

as Shigella and Cholera, malnutrition, duration and the risk of the death from diarrhea

are increase in malnourish children especially those sever malnutrition. \{Manual, 1994\}
3/ **Measles**:  
Diarrhea and dysenteries are more frequent or sever in children with measles or who had measles in the previous 4 weeks these presumably result from immunological impairment caused by measles. {Manual, 1994}

4/ **Immune deficiency or immune suppressant**:  
This may be temporary, for example, after certain viral infection "measles" or may be prolonged as in people with acquired immune deficiency syndrome "AIDS", when immune suppressant is severe diarrhea can causes by unusual pathogen and may be prolonged. {Manual, 1994}

2-3-3: **Environmental**

1. **Seasonality**:  
Diarrhea due to bacteria occur more during warm season or in summer where as viral diarrhea occur in winter. {Manual, 1994}

2. **Using infant feeding bottles**:  
This is become contaminated with fecal bacteria and difficult to clean and when
The milk is added to unclean bottles, contaminated and not consume immediately

Bacterial growth occur. {Manual, 1994}

3. **Using drinking contaminated with fecal bacteria**:

Water may be contaminated at it is source or during storage in home, contamination

Occurs when the storage container is not covered, or when contaminated hand comes

With contact with water, so the main causes of diarrhea are poor hygiene and lack of

Clean drinking water. {Manual, 1994}
Etiology of diarrhea:

1-infections diarrhea

a: Enteric infections

1/ viruses: rota virus, calici viruses, astro viruses, and enteric adeno viruses (sero types 40 and 41)

2/ bacteria: salmonella, shigella E.coli, campylobacter jejuni, yersinia enterocolitica, clostridium difficile

3/ protozoa: entamoeba histolytica, crypto sporidium, Giardia lamblia

b: Parenteral infections:

like pneumonia and otitis media may be accompanied by diarrhea the mechanism of which is still unknown but may be due to food intolerance during infection

2-Non infections causes:

a: Dietetic factors: over feeding, food allergy, non suitable diet or a food not suitable for age

b: Malabsorption: disaccharidase deficiencies e.g lactose intolerance, celiac disease, an cystic fibrosis

c: Endocrinial: thyrotoxicosis, addison's disease and adrenogenital syndrome. [Nasser 2012]

d: Miscellaneous: immunodeficiency, irritable bowel syndrome, defect
in neuromuscular units (blind loop). Antibiotic associated diarrhea caused by *Clostridium difficile* which produce toxin, cause diarrhea following exposure to any antibiotics. [Nelson 16th]
PATHOGENESIS OF DIARRHEA

Normally the water and electrolytes are secreted into the intestinal lumen in the crypts and absorbed in the villi more than 90% of fluids and electrolytes are secreted in the cryps and reabsorbed by the villi. diarrhea is essentially caused by break down in this balance ie increased secretion and \or decreased absorption of water and electrolytes.  [Nasser 2012]

Pathogenesis of viral diarrhea

Viruses like rota virus invade the absorptive enter cyts of the villi in the upper small intestine while the crypt cell are spared. the virus replicates causing epithelial cell destruction and villous shortening. destroyed cells are rapidly replaced by cells that migrate up from the crypts; so the affected villi become temporarily covered by immature secretory crypt like cells that cause the intestine to secrete water and electrolytes. recovery occurs when the villi regenerate and the villious epithelium mature.  [Nasser 2012]

Pathogenesis of bacterial diarrhea

1-Mucosal adhesion: bacteria adhere to intestinal mucosa through pili to avoid being swept away. in some instances mucosal adherence is associated with changes in the gut epithelium that may reduce its absorptive capacity or cause increased fluid secretion. [Nasser 2012]

2-Secretion of enterotoxin: after adherence some organisms like v-cholera and enterotoxigenic E-coli produce toxins that stimulate the production of cAMP in the mucosal cells leading to inhibition of absorption from villi and increased secretion of water and electrolytes in the crypts.  [Nasser 2012]
3- Mucosal invasion: other organisms like shigella, campylobacter jejuni, enteroinvasive E. coli and salmonella can cause bloody diarrhea by invading and destroying mucosal epithelial cells. Invasion may be followed by the formation of microabscesses and superficial ulcers; hence the presence of red and white blood cells, or visible blood in the stools, toxins produced by these organisms cause tissue damage and possibly also increased mucosal secretion of water and electrolytes. [Nasser 2012]

**Pathogenesis of protozoal diarrhea**

1- Mucosal adhesion: G. lamblia and cryptosporidium adhere to the epithelium and cause shortening of villi and diarrhea. Other contributing factors may include mechanical irritation, direct mucosal damage. [Nasser 2012]

NB: Cryptosporidium cause mild watery diarrhea in immunocompetent persons and severe prolonged diarrhea in person with AIDS. [Nelson 16 th]

2- Mucosal invasion: virulent E. histolytica causes diarrhea by invading epithelial cells of the colon and causing microabscess and ulcers. [Nasser 2012]
**DIAGNOSIS:**

**History:**

1. Duration of diarrhea.
2. Consistency, frequency, and volume of stools.
3. Mucus and blood in stools (with diarrheas suggest an invasive organism).
4. Fever, vomiting, convulsions, or cough.
5. Type and quantity of food, milk, and fluids consumed during illness.
6. Drugs received.
7. Nutritional history: Because dietetic errors may cause diarrhea e.g. food allergy. Malnutrition leads to diarrhea by many factors (infection, maldigestion, malabsorption or lactose intolerance).
8. Past history of similar attacks (ask for their frequency, duration, and response to treatment).

9. Family history of similar conditions. Bad living conditions, predispose to contaminated food. [Nasser 2012]
CLINICAL EXAMINATION:
Mainly directed toward signs of dehydration as thirst, dry mucus membrane (mouth and tongue), sunken eye, depressed anterior fontanel, loss of skin elasticity, etc.
-Vital signs: pulse to exclude signs of shock which is rapid weak pulse.
Blood pressure: hypotension may be found in severe cases.
Temperature: fever due to infection and dehydration.
Respiratory rate: rapid shallow in pneumonia.
-Anthropometric measurements: (weight length and head circumference) to calculating fluid requirements and assessing the success of rehydration, also to exclude malnutrition.
-Examine chest to exclude pneumonia, and ear to exclude otitis media. [Nasser 2012]

Investigations:
1- Stool analysis and culture to detect the causative organism.
2- Serum electrolytes Na, K.
3- PH and serum bicarbonate (for acid base balance).
4- Urine analysis to exclude urinary tract infection.
5- If systemic sepsis is suspected blood and urine cultures are required. [Nasser 2012]
Treatment of Diarrhea

The principal two dangers of diarrhea are Dehydration, which can lead to death and Malnutrition.

Accordingly, the management of patient should be focused on:

1. Fluid therapy for prevention of Dehydration in children with no signs of dehydration, and correction of dehydration in Dehydrated children.

2. Proper feeding during and after diarrhea.

3. Management of associated problems or complications.

Dehydration

Assessment of Dehydration:

- Key signs of dehydration:
  1. Restless, Irritable.
  2. Thirsty, Drink eagerly.
  3. Lethargy or unconscious.
  4. Drink poorly or unable to drink.
  5. Sunken eyes.
  6. Skin pink goes back slowly.
<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
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<tbody>
<tr>
<td><strong>Degree of Dehydration</strong></td>
<td>No Dehydration</td>
<td>Mild Dehydration</td>
<td>Sever Dehydration</td>
</tr>
<tr>
<td><strong>Condition</strong></td>
<td>Well, Alert</td>
<td>Restless, Irritable</td>
<td>Lethargy, unconscious, floppy</td>
</tr>
<tr>
<td><strong>Eyes</strong></td>
<td>Normal</td>
<td>Sunken</td>
<td>Very Sunken</td>
</tr>
<tr>
<td><strong>Tears</strong></td>
<td>Present</td>
<td>Absent</td>
<td>Absent</td>
</tr>
<tr>
<td><strong>Mouth and Tongue</strong></td>
<td>Moist</td>
<td>Dry</td>
<td>Very Dry</td>
</tr>
<tr>
<td><strong>Thirsty</strong></td>
<td>Not Thirst</td>
<td>Thirst, Eagerly drink</td>
<td>Drink poorly, or unable to drink</td>
</tr>
<tr>
<td><strong>Loss</strong></td>
<td>&lt; 5 %</td>
<td>5 – 10 %</td>
<td>&gt; 10 %</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td>Plan treatment A</td>
<td>Weight and Plan treatment B</td>
<td>Weight and Plan treatment C</td>
</tr>
</tbody>
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# Plan of Treatment

<table>
<thead>
<tr>
<th></th>
<th>Plan A</th>
<th>Plan B</th>
<th>Plan C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How much</strong></td>
<td>&lt; 2 yrs: 50 – 10 ml  &gt; 2 yrs: 100 – 200 ml After each stool loss</td>
<td>75 ml / kg body weight</td>
<td>100 ml / kg body weight</td>
</tr>
<tr>
<td><strong>How</strong></td>
<td>By:  - Cup and Spoon  - Cup alone  - Dropper  - Syringe  - Nasogastric tube</td>
<td>By: Cup and Spoon</td>
<td>By: I.V Fluid</td>
</tr>
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</table>
Oral Rehydration Solution – O.R.S -

- Originally the World Health Organization (W.H.O) developed the W.H.O O.R.S to rapidly rehydration victims of the sever Diarrheal illness (Cholera), the W.H.O O.R.S solution contains Glucose and Electrolytes.

- Oral Rehydration Solution (O.R.S) are liquid that contain a Carbohydrate (Glucose or Rice syrup), and Electrolytes (Sodium – Potassium – Chloride – Citrate or Bicarbonate).

- It is the main recommended method of Rehydration in most cases of Diarrhea with Dehydration in children.

- It is composed of: NaCl 3.5 gm – Trisodium Citrate 2.9 gm – KCl 1.5 gm and Glucose 20 gm dissolved in 100 ml of clear water.

- It acts by Glucose – sodium Co transport Theory (using a single carrier, both Glucose and Sodium and cross the intestinal barrier, this enhance Sodium reabsorption and consequently water and other electrolyte.

- The O.R.S is effective in all types and degrees of Diarrhea, and it’s cheap and easy to administrate.

- The rate of administration is 5 ml/min but in case of Nasogastric tube the rate is 15 ml/kg/hour.

- The degree of administration depends on the degree of Dehydration (Plan of treatment).
Complication of Rehydration:

A number of problems may arise during Rehydration Therapy, some of which require specific treatment.

In general this fall three into categories:

1 – Electrolytes and Acid – base abnormalities

These include: (Hyponatremia, Hypernatremia, Hyperkalemia, and Base Deficient Acidosis).

2 – Failure of Oral Rehydration Therapy

a – Patient how pass watery stool at very high rates, the patient unable to drink sufficient O.R.S. to replace losses. So such patients should treated with I.V Rout.

b – Persistent vomiting: The clinical sing of Dehydration don’t improve. such patients should treated by I.V Line.

c – Inability to drink; because of Stomatitis, Candida Albican or Herpes Viruses.

d – Abnormal distension and Paralytic Ileus, which may be due to hypokalemia or iatrogenic due to drug e.g: Loperamide and Codine.
e – Glucose Malabsorption: It’s not usual but if occur during acute diarrhea use of O.R.S cause marked increase in watery diarrhea.

3 – Seizure

In Diarrhea may be due to (Hypoglycemia, Hyperthermia, Hypermotremia or Hyponatremia).
**Malnutrition**

- Nutrition should be maintained during diarrhea because:
  
  1. Despite fecal loss of nutrients, more than 60% of nutrients are absorbed.
  
  2. Prolonged starvation can lead to malnutrition especially in borderline cases.

**Feeding**

1. Breast fed babies should continue to receive breast milk as usual.

2. Formula fed infants are given as usually prepared.

3. Soft and Semisolid Weaning food that are usually taken by the child should also be continued.

4. Small frequent feedings are better tolerated than less frequent large meals.

5. After diarrhea has been stopped, give one extra meal per day for two weeks, and for longer period in malnourished child.
**Associated Problems and Complications**

1 – DIC is treated by correction of Dehydration, and Acidosis, and transfusion of platelets and fresh frozen plasma or fresh blood.

2 – Shock and Prerenal failure are managed by urgent intravascular volume expansion, follow up of renal function tests after correction of Dehydration is essential and management is adjusted according.

3 – Hypernatremia and Hyponatremia both corrected using an Isotonic Rehydration Fluid.

4 – Post Acidosis Tetany corrected by slow I.V infusion of 10% solution of Calcium Glucanate.

5 – Post Acidosis Hypokalemia is prevented by simultaneous correction of acidosis and hypokalemia e.g: I.V polyelectrolyte solution.

6 – Hypoglycemia is treated with I.V Glucose.
Drugs Used In Treatment Of Diarrhea

1: Antibiotics

Should be used only for Dysentery and suspected Cholera

- In Cholera
  Tetracycline 50 mg / kg / day in 6 hours. divided does for 3 days.
  Trimethoprim 5 mg / kg + Sulfamethoxazole 25 mg / kg twice daily for 3 days.

- In Shigella Dysentery
  Tetracycline 5 mg / kg + Sulfamethoxazole 25mg / kg twice daily for 5 days.
  Ceftrixone 40 mg / kg i.V or i.M. divided does every 12 hours for 5 days.

- In Amoebic Dysentery
  Metronidazole 30 – 50 mg / kg / day for 10 days.

- In Gardiasis
  Metronidazole 15 mg / kg / day for 5 – 7 days.

Nasser Gamal 2011
2. Antidiarrheal Drugs

None has any proven scientific value in the reduction of watery stool. Opiate and Antimotility agents are dangerous. Other drugs are only water adsorbent that make stool less fluid without causing any significant reduction in their amount. Nasser Gamal 2011

The Two Main Antimotility Medications are:

- Loperamide (Imodium), which is available without a prescription
- Diphenoxylate (Lomotil), which require a prescription. www.Medcinenet.com

3. Antiemetics Drugs

Vomiting in Dehydrated patients usually stops after rehydration and correction of acidosis. Antiemetics are either of no value or have serious side effects and they should not be used. Nasser Gamal 2011
Prevention Of Diarrhea

- Proper case management and consisting of Oral Rehydration Therapy and Feeding can reduce the adverse effect of the diarrhea, which include Dehydration and Nutritional damage and Risk of Death.

- Prevention of diarrhea properly carried out, can be as important as case management, and can be the only way of avoiding death where treatment is not readily available.

- The various infectious agents that cause diarrhea are all transmitted by common fecal – oral pathway such as contaminated water and hands.

- Measures taken to interrupt the transmission of causative agents on these should be focus on these pathway. Manual, 1994

Six Practice Identified As Targets For Promotion Are:

1 – Breast Feeding.

2 – Improve weaning practice.

3 – Use of plenty of water for hygiene and use clean water for drink.

4 – Hand washing.

5 – Use of latrines.

6 – Safe disposal of the stool of young children.

Manual, 1994
C.C.D Programme

- Is a programme committed by W.H.O to support the implementation of national programme as essential complementation to consequence of researches and developmental efforts in addition to technical support to national programme. The C.C.D continuous to give financial support to certain type of programme activity as mean of initiating the correct use of new technical and managerial tools.

- The C.C.D a programme support for implementation in 1994 comprise six over all approach:
  _ First : Support and technical assistant were provided to promote sound planning of national programmes by focus review improving the use of data from evaluation, and programme planning for selected countries.

  _ Second : In Co- operation with W.H.O regional office, the C.C.D programmes input are being focused on a limited number of countries that offer the greatest potential for mortality reduction.

  _ Third : The C.C.D programme continuous to explore possibility of successfully combining C.C.D activities with those other programmes by providing training in case management and programme management.

  _ Fourth : Approach to maximizing effectiveness despite limited resource has been tried to ensure that effort directed to epidemic diarrheal control national C.C.D.

  _ Fifth : Approach has been capitalized on there important role that in countries C.C.D staff play in strengthening implementation.

  _ Sixth : Effective CO – Ordination between agents continuous to be crucial for programme implementation.
### Table and figure(1)

#### Age

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
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<td>3</td>
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</table>

#### Age

![Pie chart showing age distribution]

- **1month** (3.8%)
- **1month - 6month** (11.3%)
- **6month- 2years** (43.6%)
- **2years - 5years** (41.3%)

Total (100.0%)
### Residence

<table>
<thead>
<tr>
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- **Residence**

![Bar chart showing distribution of residence types](image-url)
### Table and figure(3)

#### Gender

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#### Gender

- **Male**
- **Female**
### Table and figure(4)

#### Mother Education

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<td><strong>100.0</strong></td>
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#### Mother Education Distribution

![Bar chart showing the distribution of mother education levels with categories: Illiterate, Primary school, Secondary school, University.](chart.png)
### Table and figure (5)

#### Socioeconomic status

<table>
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<td>63.8</td>
<td>73.8</td>
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<td>Moderate</td>
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#### Socioeconomic status

- No Source
- Mild
- Moderate
### Normal breast feeding

<table>
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<td>74</td>
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<td>4</td>
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Table and figure(7)

<table>
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<td>Valid</td>
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<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Normal habit</td>
<td>58</td>
<td>72.5</td>
<td>72.5</td>
<td>72.5</td>
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<tr>
<td>Nutritional</td>
<td>11</td>
<td>13.8</td>
<td>13.8</td>
<td>86.3</td>
</tr>
<tr>
<td>Immunizatr</td>
<td>8</td>
<td>10.0</td>
<td>10.0</td>
<td>96.3</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
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<td>3.8</td>
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</tr>
<tr>
<td>Total</td>
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</tr>
<tr>
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<td>Percent</td>
<td>Valid Percent</td>
<td>Cumulative Percent</td>
</tr>
<tr>
<td>-------</td>
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<td>---------</td>
<td>---------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>yes</td>
<td>22</td>
<td>27.5</td>
<td>27.5</td>
<td>27.5</td>
</tr>
<tr>
<td>No</td>
<td>58</td>
<td>72.5</td>
<td>72.5</td>
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Mix between normal and artificial feeding
### Table and figure(9)

#### Food in addition to lactation

<table>
<thead>
<tr>
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<th>Frequency</th>
<th>Percent</th>
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<th>Cumulative Percent</th>
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</thead>
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<tr>
<td>Valid yes</td>
<td>64</td>
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<td>80.0</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
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<td>20.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
<td>100.0</td>
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</tr>
</tbody>
</table>

#### Food in addition to lactation

![Bar chart showing frequency of food in addition to lactation]
<table>
<thead>
<tr>
<th>Type of food</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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</thead>
<tbody>
<tr>
<td>Valid vegtable</td>
<td>14</td>
<td>17.5</td>
<td>17.5</td>
<td>17.5</td>
</tr>
<tr>
<td>bogolyat</td>
<td>36</td>
<td>45.0</td>
<td>45.0</td>
<td>62.5</td>
</tr>
<tr>
<td>meat</td>
<td>6</td>
<td>7.5</td>
<td>7.5</td>
<td>70.0</td>
</tr>
<tr>
<td>other</td>
<td>23</td>
<td>28.8</td>
<td>28.8</td>
<td>98.8</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
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<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
<td>100.0</td>
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</table>
### Table and figure (11)

#### Time of drinking water

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid less than month</td>
<td>31</td>
<td>38.6</td>
<td>38.6</td>
<td>38.6</td>
</tr>
<tr>
<td>1-4 month</td>
<td>6</td>
<td>7.5</td>
<td>7.5</td>
<td>46.3</td>
</tr>
<tr>
<td>4-6 month</td>
<td>21</td>
<td>26.3</td>
<td>26.3</td>
<td>72.5</td>
</tr>
<tr>
<td>after 6 month</td>
<td>22</td>
<td>27.5</td>
<td>27.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

#### Time of drinking water

- less than month
- 1-4 month
- 4-6 month
- after 6 month
<table>
<thead>
<tr>
<th>Source of Water</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid sasaie</td>
<td>43</td>
<td>53.8</td>
<td>53.8</td>
<td>53.8</td>
</tr>
<tr>
<td>pipe</td>
<td>10</td>
<td>12.5</td>
<td>12.5</td>
<td>66.3</td>
</tr>
<tr>
<td>purified</td>
<td>27</td>
<td>33.8</td>
<td>33.8</td>
<td>100.0</td>
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<td>100.0</td>
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</tbody>
</table>

Source of water

![Bar chart showing frequency of water sources]
### Table and figure (13)

#### Boiling of water

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
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<tr>
<td>Valid</td>
<td>yes</td>
<td>31</td>
<td>38.6</td>
<td>38.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>49</td>
<td>61.3</td>
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</tbody>
</table>

#### Boiling of water

- **yes**: Light blue
- **No**: Green

---

13
## Usage of bottles

<table>
<thead>
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<th></th>
<th>Frequency</th>
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</table>

### Usage of bottles

- **yes**
- **No**
### Table and figure(15)

<table>
<thead>
<tr>
<th>Storage of food</th>
<th>Frequency</th>
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<tr>
<td>Valid yes</td>
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<td>6.3</td>
<td>6.3</td>
<td>6.3</td>
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</table>
### Washing of hands before eating

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<tr>
<td>Valid</td>
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<td>1.3</td>
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<td>100.0</td>
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<tr>
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<td>100.0</td>
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</table>

**Pie chart showing:**

- **Yes:** 98.8%
- **No:** 1.3%
<table>
<thead>
<tr>
<th>Time of weaning</th>
<th>Frequency</th>
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<th>Valid Percent</th>
<th>Cumulative Percent</th>
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<tr>
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<td>35.0</td>
<td>35.0</td>
</tr>
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<td>1 and half</td>
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<td>20.0</td>
<td>20.0</td>
<td>55.0</td>
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<tr>
<td>2 years</td>
<td>25</td>
<td>31.3</td>
<td>31.3</td>
<td>86.3</td>
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<tr>
<td>more than 2</td>
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### History of vaccination

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<td>23.8</td>
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</table>

![Bar chart showing frequency of history of vaccination](image-url)
## What is diarrhea

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Gastroenteritis</td>
<td>23</td>
<td>28.8</td>
<td>28.8</td>
<td>28.8</td>
</tr>
<tr>
<td>teething</td>
<td>30</td>
<td>37.5</td>
<td>37.5</td>
<td>66.3</td>
</tr>
<tr>
<td>poisoning</td>
<td>10</td>
<td>12.5</td>
<td>12.5</td>
<td>78.8</td>
</tr>
<tr>
<td>other</td>
<td>17</td>
<td>21.3</td>
<td>21.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Diagram:

- **Gastroenteritis**: Purple
- **Teething**: Light green
- **Poisoning**: Light yellow
- **Other**: Light blue

---

19
### Previous history of diarrhea

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid yes</td>
<td>53</td>
<td>66.3</td>
<td>66.3</td>
<td>66.3</td>
</tr>
<tr>
<td>No</td>
<td>27</td>
<td>33.8</td>
<td>33.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Pie chart:**
- Blue: yes
- Green: No
### Table and figure (21)

#### Attitude of mothers during diarrheal attack

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid stop breast feeding</td>
<td>15</td>
<td>18.8</td>
<td>19.0</td>
<td>19.0</td>
</tr>
<tr>
<td>Valid not stop</td>
<td>64</td>
<td>80.0</td>
<td>81.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>79</td>
<td>98.8</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Attitude of mothers during diarrheal attack

![Bar chart showing frequency of mothers' attitudes during diarrheal attack]
## Oral rehydration users

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid user</td>
<td>60</td>
<td>75.0</td>
<td>75.0</td>
<td>75.0</td>
</tr>
<tr>
<td>not user</td>
<td>20</td>
<td>25.0</td>
<td>25.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
### Table and figure (23)

**Place of mange during diarrhea**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid health center</td>
<td>72</td>
<td>90.0</td>
<td>90.0</td>
<td>90.0</td>
</tr>
<tr>
<td>treatment without consulting</td>
<td>8</td>
<td>10.0</td>
<td>10.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

![Bar chart showing place of mange during diarrhea]


**METHODOLGY**

1- Study area:

This study was conducted in pediatric teaching hospital and the police hospital in locality of port Sudan.

2- Study population:

Comprise of both sex of children under five years who present with diarrhea to emergencies unit and admitted case.

3- Sample size:

The data cover 80 children under five year with diarrheal disease for four months.

4- Study design:

The data was collected from mothers whose children have diarrhea.

5- Method of data collection:

The data collected by using questionnaire which designed according to information needed for this study.

6- Method of data analysis:

The data analysis by using computer.
OBSTACLES:
-Difficulte in interviewed due to language barrier.
-Some mothers not gave the correct answer to some questions e.g: if she gave O.R.S.
-If they washed hands before child feeding.
-There is difficulty in stool collection.
CHAPTER FOUR
RESULT: Of questionnaire:
All data were obtained from 80 mother:

*Table and fig [1]*
Shows the distribution of diarrhea according to age and found that 43.8% are between 6 month--2 year and 41.3% are between 2 - 5 year.

*Table and fig [2]*
Shows the residence and found 47.5% of affected children from east of port sudan, 42.5% from south, while only 10% from center of port sudan.

*Table and fig [3]*
Shows gender distribution, which found 56.3% of infected children are female.

*Table and fig [4]*
Represents the level of education of the mother, found 22.5% are of primary school level, and 10% at university.

*Table and fig [5]*
Shows the socioeconomic status, 63.8% have mild socioeconomic status, and 10% have no source of income.

*Table and fig [6]*
Shows the type of feeding, found 92.5% have normal breast feeding.

*Table and fig [7]*
Represents the knowledge of the mother toward the importance of breast feeding, 72.5% said natural habits, 13.8% said for nutritional purpose, 10% said for immunization.

*Table and fig [8]*
Shows the mix between normal breast feeding and artificial feeding. found 27.5% mix between normal and artificial feeding and 72.5% not mix.

*Table and fig [9]*
Shows the mother who give additional food. found 80% give food in addition to lactation.

*Table and fig [10]*
Shows type of additional lactation. 45% gave legumes.

*Table and Fig [11]*
Shows the time of started drinking water. 38.8% started drinking in less than one month, 27.5% gave water after 6 mpth.

*Table and fig [12]*
Represents the source of water. 53.8% saga 12.5% from pipe and 33.8% purified.
Table and fig [13] :
Shows the mothers who boiling water, 38.8% boil water and 61.3% not boil water.

Table and fig [14] :
Represents the usage of bottle and found 18.8% use bottle and 81.3% not use bottle.

Table and fig [15] :
Shows the mother who storage the food. found 6.3% store food, and 93.8% not store food.

Table and fig [16] :
Shows the mothers who wash hands before feeding and after cleans the child, found 98.8% wash hands and 1.2% not wash hands.

Table and fig [17] :
Shows the time of weaning 35% are not weaned, 31.3% are weaned after 2 year.

Table and fig [18] :
Shows history of vaccination, 75% are vaccinated and 23.8% not vaccinated.

Table and fig [19] :
Shows the knowledge of the mothers about causes of diarrhea, 28.8% said gastroenteritis, 37.5% said teething, 12.5% said due to poisoning, 21.3% other.

Table and fig [20] :
Shows children have first and previous attack of diarrhea, 66.3% presented with previous attack and 33.8% no previous attack.

Table and fig [21] :
Reflects attitude of the mothers for breast feeding during diarrheal attack, 81% not stop breast feeding and 19% stop breast feeding.

Table and fig [22] :
Shows ORS users during diarrheal attack, study found 75% are users.

Table and fig [23] :
Shows the attitude of the mothers toward treatment of diarrheal disease. The study found 90% treat her child in health center and 10% treat the child without consulting the doctor.
Discussion

This is prospective study was conducted in port Sudan pediatrics hospital, 80 mothers were interviewed. Diarrheal disease is a common health problem particularly in Red Sea area and most cases of children presented to pediatrics hospital have a diarrhea and this may be attributed to several factors which are related to host, environmental and causative agents.

Fig (1) :- Show that the most susceptible age affected by diarrhea those between the age of 6 months ---- 2 years, then those between the age of 2 ---- 5 years, this is consistence to Manual 1994 who stated that: most diarrheal episodes occurs during the first two years of life and incidence is highest in the age group 6---- 11 months, this pattern reflect the combined affect declining level of maternally acquired antibiotics and lack of active immunity in the infants.

Fig (2) :- Show that the most susceptible areas in port Sudan Who residence in the East.

Fig (3) :- Show that the female are more affected by diarrhea than the male, this may be due to lack of their immunity.

Fig (4) :- Show that the majority of the mothers are not educated, which means they are not aware for the importance of breast feeding.

Fig (5) :- Show that the relation between the development of diarrhea among children with poor socioeconomic status, due to lack of nutritional support.

Fig (6) :- Show that the most affected children are not weaned and on breast fed, this is contrast to the Manual who stated that: some major benefits of breast feeding that breast fed babies have fewer and less sever episodes of diarrhea. Our explanation to this result, that the most
breast fed babies are not in exclusive breast feeding and in incomplete lactation due to ignores of
mothers of way and benefit of breast feeding, this is reported by Manual 1994 who stated that:
failure of breast fed exclusively for the first 4 months of life the risk of developing sever diarrhea is
greater in infant who are not breast fed.

Fig (7):- Show that the majority of mothers said that, it is normal habit and or this is
nutritional way and they not aware about the role of breast feeding in protection against infection.
{ Breast milk has immunological properties especially antibodies that protect the infant from infection
especially from diarrhea –Manual 1994 }

Fig (8):- Show that the majority of mothers not dealing with the mixture between the
normal and artificial milk.

Fig (9):- Show that the majority of mothers dealing with addition of food during lactation
before the age of 4 ---- 6 months at least, by means it is not a proper time to starting additional
feeding, otherwise the food may be contaminated, the way of preparing it not healthy and there is
bad storage for it as shown in fig (10) and (15).

The most important factors is contaminated water: so the research deal with the sources of
water, which shown in the Fig (12), time of drinking water and practice of mothers toward water
Hygiene like boiling, which shown in Fig (11) and (13) respectively. The result show that most of the
Affected children are given drinking water since birth and during the first 4 months, and the most of
from non hygienic source like saga, also most mothers are not boiling water. All these factors increase
occurrence of diarrhea and this conducted by Manual 1994, who stated that: the most infectious agent

that cause diarrhea are transmitted by the feco-oral, this include transmission by contaminated drinking water or contaminated food, so clean water is essential for how ever for drinking and for

preparing food and about boiling, Manual 1994 stated: a boiling water that will be used to make food

or drinking for young children.

The usage of bottles are important factors to occurrence of diarrhea, Fig (14) shown that

minority are used it, using for giving water and others for nutritional substance. Manual stated that:

bottles using increase the risk of infection by diarrhea and that due to it is easy contaminated, difficulty

to clean and when added milk or other food which is may not consumed immediately, this is good media for bacterial growth and also use of bottles encourage to decrease number of breast feeding.

Fig (16): Show that the majority of the mothers washing their hands, as we know it is an

Important method to protect against microbial transmission, but the washing must be properly. If the

contrast occur, transmission will occur.

Other factors including the effect of early weaning, Fig (17) show that, the majority of children are not weaned and on the breast fed, this is contrast to the Manual who stated that: some

major benefits of breast feeding that breast fed babies have fewer and less severe episodes of diarrhea.

Our explanation to this result, that the most breast fed babies are not in exclusive breast feeding and

incomplete lactation due to ignores of mothers of why and benefit of breast feeding, this is reported by

Manual 1994 who stated that: failure of breast fed exclusively for the first 4 months of life the risk of
dev eloping sever diarrhea is greater in infant who are not breast fed.
Fig (18) :- show that the majority of affected children are vaccinated by BCG, DPT and polio;

but the minority are vaccinated against measles and our explanation of that: due to the large interval

between the measles. The vaccination play an important role in prevention of infectious disease especially measles; and there is strong co-relation between measles and occurrence of diarrhea,

this reported by Manual 1994 who stated that: children who have measles in the previous four week have substantially increase risk of developing sever or fatal diarrhea or dysentery, because of the

strong relationship between measles and serious diarrhea and effectiveness of measles vaccine,

immunization against measles is very cost effective measure for reducing the morbidity and mortality

association with diarrhea.

The study deals with the knowledge of the mothers about causes of diarrhea in children,

Fig (19) show that majority thought that diarrhea is the result of teething and this is false believe and

the reality of that, infant in time of teething have a low immunity due to several other factors this

reported by Manual 1994 who stated that: incidence is higher in the group of 6 —- 11 months where

weaning often occur, declining level of maternally acquired antibodies, lack of active immunity in the infants and introduction of food that may be contaminated.

Fig (20) :- Show that the majority of affected children by diarrhea have a past history of diarrheal attack, by means the most affected children are in high risk to infection by diarrhea and not change their environment.

About the attitude of the mothers for breast feeding during the diarrheal attack, Fig (21) :-

show that the majority of the mothers not stopped breast feeding, and excluding the false believes
that said: breast feeding increase the amount and number of motion and thus causing diarrhea.

This is in contrast to Manual who stated that: the notion that feeding should be reduce or stopped during diarrheal reflects a common belief that: giving food will cause stool output to increase and thus diarrheal become worse; but this not usually the cause, for example, breast milk is usually tolerated during diarrhea and children who continue to breast feeding during diarrhea, actually have reduce stool output and shorter duration of illness than do not breast fed.

The danger of infectious diarrhea is that, it lead to dehydraion so children need early supportive management, the community have different ways for treatment such as treatment with traditional methods, that have specific danger, complication and have no affect on treatment of diarrhea, other leave them without treatment and other using oral rehydration solution. *Fig (22):-

show that the majority of mothers using oral rehydration solution during diarrheal attack. *Fig (23):- show that the majority of cases are treated in the nearest health center and the the fewer resort to traditional method and treated without consulting.

**THANKS.**
CONCLUSION

This study was carried out in four months from July to October in Port Sudan Pediatric Hospital at Port Sudan locality in order to identify the factors contributing to diarrheal disease among children under five years, 80 mothers were interviewed.

The highest percentage of diarrheal is found in children between 2 months to 2 years old and females are more affected than males, other factors contributing to diarrhea are ignores of the mothers about the importance of exclusive breastfeeding in the first 6 months of life, proper weaning practice, importance of cleaning water, use of ideal type of food according to the child age and vaccination especially against measles.

Prevention of diarrheal disease depend mainly on education of the mothers and health education for whole community.
**Recommendation**

Based on result and conclusion of the study; the following recommendation were suggested to assist in the control measure of diarrhoeal diseases in the study area:-

- Improving access to clean water and safe sanitation and keeping water and food clean.

- Safety disposing of feces including those of infants.

- Health education to the mothers about personal hygiene such as washing hands before preparing food and after defecation, with help of other authorities like teachers and pupil due to their good communication to mothers and community.

- Exclusive Breast feeding in the first 6 months of life and continuity of the breast feed in the first two years of life.

- Avoiding the use of the infant bottles and improving weaning practice.

- Immunizing all children especially against measles.
CHAPTER SEVEN
References

Websites :-
www.google.com
www.medicinenet.com
www.wikipedia.com

Books :-
استبيان بعنوان أسباب الإسهالات عند الأطفال أقل من 5 سنوات في سنة 2013م
المكان: ........................................... التاريخ: / 2013م

1/ الفئة العمرية:
- شهر
- 6 شهر - 2 سنة
- 2 سنة - 5 سنة

2/ المكان:
- الشرقي
- الجنوبي
- الأوسط
- أنثى
- ذكر

3/ الجنس:
- الوالد
- الأخت
- الأخ
- غير معتمدة

4/ تعليم الأم:
- ابتدائي
- ثانوي
- جامعي
- متوسط
- متوسط
- عالي
- محدود

5/ مستوى دخل الأسرة:
- متوسط
- عالي
- محدود
- متوسط

6/ هل رضع طفلك رضاعة طبيعية:
- نعم
- لا

7/ أهمية الرضاعة الطبيعية:
- أمر طبيعي
- تغذية
- حصانة طبيعية
- آخر

8/ هل جمعت بين الرضاعة الطبيعية والحليب الصناعي:
- نعم
- لا
9/ هل أعطيتي طفلك طعام أثناء الرضاعة:

نعم ☐ لا ☐

إذا كانت بنعم متى:

قبل 6 شهور ☐ بعد 6 شهور ☐

ما نوع الطعام:

خضروات ☐ بقوليات ☐ لحوم ☐ آخر ☐

10/ متى بدأ شرب الماء:

أقل من شهر ☐ 1-4 شهر ☐ بعد 6 شهور ☐

11/ مصدر مياه الشرب:

سفا ☐ شكية ☐ مياه صحية ☐

12/ هل يتم تعقيم المياه قبل الشرب:

نعم ☐ لا ☐

13/ هل استخدمي البزارة:

نعم ☐ لا ☐

14/ هل تقومي بتخزين طعام الطفل ليوم أو أكثر:

نعم ☐ لا ☐

15/ هل يتم غسل اليدين قبل الأكل للأم والطفل وبعد قضاء الحاجة:

نعم ☐ لا ☐

16/ متى قمتني بتغطية الطفل:

لم يفطم ☐ نصف سنين ☐ سنة ونصف سنين ☐ أكثر ☐
17/ هل قمتين بتطعيم الطفل:

لا □ √ □

18/ ما هو الإسهال:

التهابات معاوية □ تسنين □ تسمن □ آخر □

19/ هل أصيب الطفل بالإسهال من قبل:

لا □ √ □

20/ إذا كانت الإجابة بنعم كم مرة:

مرة واحدة □ مرتين □ ثلاثة □ أكثر من ثلاثة □

21/ عند إصابة الطفل بالإسهال هل توقفين الرضاعة:

لا □ √ □

22/ إذا كانت نعم ما هو البديل:

حليب خارجي □ عصائر □ لا يعطى شيئاً □ آخر □

23/ عند إصابة الطفل بالإسهال أي يعالج:

أخذ العلاج بدون استشارة الطبيب □

قترب وحدة صحية □

المعالج البلدي □

لا □ √ □