



Summary

Children suffering from renal failure are at risk for developing malnutrition due to dietary restrictions, anorexia and chronic toxemia. They are also at risk of vitamin toxicity due to impaired nutrient excretion, particularly those on regular haemodialysis as long-term medication use combined with poor nutritional intake can exhaust nutritional stores in the dialysis child.

The aim of the current study was to assess the nutritional state of the children undergoing haemodialysis therapy.

Research Question:

What is the nutritional state of children undergoing haemodialysis therapy?

Design:

Descriptive study.

Setting:

The study was carried out at Haemodialysis Pediatric Unit of Benha University Hospital and Teaching Hospital in Benha City.

• Sampling size and characteristics:

The study was comprised of 100 child undergoing haemodialysis therapy at the previously mentioned setting with the following inclusion criteria; children are from both gender, ages 6 – 18 years regardless their education and residence area.

Exclusion criteria: Any children suffering from other chronic diseases.



I-Technical design

a) Data collection

The following tools were used to collect the required data for the current study:

I. A questionnaire format: It was constructed in simple Arabic language by the researcher after reviewing the relevant literature. Questions were in the form of open and close ended questions. It includes the following parts:

First part to gather data in relation to:

1. Characteristics of the studied children namely; age, gender, education, rank in family and type of feeding in the infancy stage.
2. Family characteristics: parent's age, education, occupation, monthly income and family size.
3. Housing condition of the studied children: residence, water supply, sewage disposal and ventilation.

Second part to gather data in relation to: Children's knowledge about nutrition, namely feeding patterns, characteristics of the children's meals and knowledge about renal failure [concept of renal failure, causes, clinical manifestations, complications and management of renal failure] and assess their knowledge about haemodialysis therapy [concept of haemodialysis, importance of haemodialysis and number of sessions/week].

II. Nutritional assessment sheet about rate of handling children food (food consumption of children undergoing haemodialysis therapy), which was adopted from **Peterson, (1977)** and modified by the researcher.

III. Physical assessment sheet it was constructed to assess physical growth of children undergoing haemodialysis therapy including (height,



weight, head circumference, mid arm circumference and body mass index [BMI]) which was adopted from (*world health organization, 2010*).

II-Operational design:

1-Preparatory phase:

Review of the current and past national and international literature was carried out by the researcher to be oriented with the various aspects of the research problem and to develop the data gathering tools.

2- Pilot study

A pilot study was carried out, including 10 children to test the feasibility, clarity, content validity and objectivity of the study tools and accordingly the necessary modifications were done in the form of adding or omission of some questions.

3- Field work

The actual field work was carried out in January, 2011 up to June, 2011. The researcher introduced herself to the participants and explained the purpose of the study in order to obtain their acceptance to be recruited in the study as well as to gain their co-operation. The researcher interviewed each participant individually and recorded their responses in the study gathering tools. The average time needed for the completion of each interview was around 20-30 minutes and the researcher spent 3 hours per day in interviewing children over three times per week.

4) Ethical considerations:

Verbal approval was obtained from the studied children and their accompanying parents before inclusion in the study; a clear and simple explanation about the study purpose was given according to their level of understanding and their physical and mental readiness. The study subjects were assured that all the gathered data will be treated confidentially and will used for the research purpose only. In addition, those children were



informed that they have the right to withdraw from the study without giving any reason.

III-Administrative design:

An official approval to conduct the study was obtained through a formal letter from Dean of Faculty of Nursing at Benha University, the title and objectives of the study were illustrated as well as the main data items to be covered.

IV-Statistical design:

The collected data was coded, organized, tabulated and presented in tables and figures by using mean, standard deviation, number and percentage distribution and analysis by the suitable statistical tests.

Scoring system:

The scoring knowledge of the studied children was categorized into three levels as the following:

- >80 grades consider good knowledge.
- 80-60 grades consider average knowledge.
- ≤ 60 grades consider poor knowledge.

Limitations of the study:

The actual limitation which faced the researcher that the studied children some times may suffering from physical fatigue or any other complications during interview, which make the researcher stop gathering data from children until there condition improved, this make the researcher spent more time. In addition to limited number of references related to the research problem.



The main findings of this study can be summarized as the following:

- The mean age of children undergoing haemodialysis therapy was 16.16 ± 3.23 years. Regarding to children's sex, 42% of them were males. As regards to type of feeding during infancy stage, 22% of children had exclusive breast feeding, while 46% of them had artificial feeding.
- In relation to education status, about half (47%) of the studied children are illiterate, meanwhile 32% of them are in secondary school.
- According to housing condition of the studied children, nearly three quarters (73%) of the studied children live in rural area, where 63% of them have good ventilation. According to sanitation, more than half (52%) of the studied children have safe sewage disposal.
- More than three quarters of the studied children (78%) have safe water supply in their houses.
- In relation to characteristics of parents of the studied children the mean age of the mothers was 50.7 ± 17.2 years, meanwhile mean age of fathers was 38.7 ± 11.3 years. Regarding to level of education, more than half (52%) of the fathers were illiterate, while 46% of mothers were illiterate. As regard to job, the majority of the mothers (90%) were not working, while the majority of fathers (87%) were working. The mean of family size of children undergoing haemodialysis therapy was 5 ± 3 individual.
- In relation to characteristics of the studied children's meals, 50% of them have two meals/day, while 69% of children have small quantity in each meal. More than half (58%) of the studied children have snacks between meals.



- Regarding food consumption of the studied children, the study showed that more than three quarters (77%) of them have protein every week, while 3% only have protein every day and 20% of the studied children consumption protein every month.
- The study finding reflected that, nearly three quarters of the studied children have family food, but 20% of them have special food which prepared according to health status of the child.
- In relation to nutritional assessment, the study reflected that 81% of children undergoing haemodialysis therapy are suffering from under nutrition to BMI.
- As regard to physical assessment, this study showed that about two thirds of the studied children are less than normal in body weight, (64%), body mass index (77%) and height (79%).
- Regarding to knowledge of the studied children about nutrition, 46% don't know the routes of diet regimen, while about more than one quarter (26%) of children stated that decrease salt and fluid intake in diet make diet healthy.
- Regarding to feeding pattern of the studied children, this study showed that more than one quarter (26%) and 32% of children are restricting their salt and protein in diet, respectively. Also, 22% of children eat all types of food, while about two thirds of them (60%) prefer fruits.
- According to knowledge of the studied children about renal failure and haemodialysis, the current study showed that, most of the studied children (80%) have average knowledge, while 20% of them have good knowledge.
- There was a highly statistical significant differences ($P < 0.001$)



between children's knowledge and their ages and level of education.

In the light of the study findings it can be concluded that most of the studied children were having average level of knowledge regards to renal failure haemodialysis therapy and nutrition of children undergoing haemodialysis therapy. Most of them were suffering from malnutrition and impaired growth and development compared to their peers.

In the light of findings of the current study the following recommendations are suggested:

- 1) Periodic nutritional assessment of children suffering form renal failure and treated by haemodialysis therapy.
- 2) Routine physical assessment of children undergoing haemodialysis therapy to maintain their normal growth and development compared to their peers.
- 3) Health education of children undergoing haemodialysis therapy to promote their knowledge about renal failure, haemodialysis therapy and their nutrition.
- 4) Nutritional health programs based on actual need assessment of the children undergoing haemodialysis therapy.
- 5) Further studies are required to detect nutritional problems of children undergoing haemodialysis therapy and treat it.