

Body Mass Index of Children with Chronic Kidneys Diseases at Hemodialysis Centers in Baghdad Teaching Pediatric Hospitals

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Abstract: *Body Mass Index of Children with Chronic Kidneys Diseases at Hemodialysis Centers in Baghdad Teaching Pediatric Hospital. A cross-sectional study was carried out among 71 of children (41 boys and 18 girls) aged between (6-16) years selected by non-probability sampling purposive sample. According to study findings 61.97% of the children with renal failure had normal weight their BMI for age (Z score) between (-1.9 to 1.9). 8.45% of children had sever thinness (Z score) below -3 and 8.45% had Thinness below (-2 to -3) at Z score. The minimum BMI of children was -6.61, maximum BMI was 6.97 and the mean of their BMI was -0.4. Health education lectures to nurses and children's families about nutrition, medication and complications and their effects on children growth and development, anthropometric measurement and thrive indicator.*

Keywords: Mass Index, Children, Chronic Kidneys Diseases, Hemodialysis

1. Introduction

Long-term chronic kidney disease (CKD) is a condition induced by damage to both kidneys. There is not any single cause and destruction is usually irreversible and can lead to ill health. Sometimes dialysis or transplantation could become necessary. It is merely relatively recently that the epidemiology of chronic kidney disease has been studied in greater detail with the finding that it is more common than previously thought.⁽¹⁾

Chronic renal disease is associated with malnutrition and impaired growth in pediatric patients credited to anemia, acidosis metabolism, renal osteodystrophy, and tissues resistance the actions of human growth hormone and insulin-like growth factors. Furthermore, renal replacement procedures like hemodialysis and peritoneal dialysis are associated with healthy proteins losses and malnutrition. The slowing of linear growth brings to severe height reduction in infants. The attack of the pubertal progress spurt is also deferred though it occurs at the appropriate bone age. In children with obstructive uropathy and renal dysplasia, salt wasting and persistent dehydration are also contributory causes.⁽²⁾

Body mass index is regarded as a prognostic indication of mortality in both individuals and children with CKD. However its validity, as well as the validity of other anthropometric measurements, is under appreciable dispute, due to the fact of chronic kidney disease is associated with hydration position imbalances (Apostolou et al., 2014).⁽³⁾

Malnutrition is common in dialysis patients and closely related to morbidity and mortality. Therefore, examination of nutritional status and nutritional management of dialysis patients play an important role in everyday nephrological practice.⁽⁴⁾

Growth impairment is a common and maybe the most obvious complication of chronic kidney disease in children. The degree of growth impairment increases as GFR declines, even though a tremendous decrease in growth was seen at all levels of renal function. Actually more striking is the correlation between growth incapacity and age at the time of enrolment. In children with chronic renal disease the risk factors that aid to growth impairment include: malnutrition, acidosis metabolism, problem of mineral and bone, anemia, and abnormalities of electrolyte and fluid.⁽⁵⁾

In Baghdad, malnutrition was within 63.5% of patients (average in 45.9% and severe in 17.6%) without significant gender difference. Dialysis in Baghdad is below the criteria with low adequacy and occurrence of classes. Malnutrition is widespread, especially the severe varieties, and requires more attention and re-evaluation of the dialysis prescription.⁽⁶⁾

2. Methodology of the Study

Subjects: The study sample was the children whom diagnosed with chronic kidney diseases, selected by the use of non-probability sampling a purposive sampling according the study objective. The total number of the study sample (71), the boys were (41) girls were (30). The children age started from 6-16 years.

Questionnaire: The sociodemographic data sheet, consisted of (2) items categorized as general information (gender, age). The anthropometric measurement sheet consisted of two measures which include (weight, and height) to determine through these measures the body mass index by scientific application program (WHO AnthroPlus) which was obtained from Iraqi Nutrition Research Institute. A statistical analysis was performed using the SPSS package (version 16).

3. Results

Table 1: Distribution of the Children with Renal Failure by their General Data

Variables		No.	%
Gender	Male	41	57.7
	Female	30	42.3
	Total	71	100
Ages (years)	6-8 years	13	18.3
	9-11 years	17	23.9
	12-14 years	25	35.2
	15 years and above	16	22.5
	Total	71	100

No.= number, %= percentage

Table (1) shows that 57.7% of the children were male and 42.3% of them at school age (6-12) years.

Table 2: Distribution the Body Mass Index for Age in Children with Renal Failure

Variables		No.	%
BMI for age (Z score)	Thinness below -3	6	8.45
	Moderate thinness below (-2 to -3)	6	8.45
	Normal (-2 to 1)	44	61.97
	Overweight above +1 to +2	6	8.45
	Obesity above +2	9	12.68
Total		71	100
Minimum		Maximum	Mean
-6.61		6.97	-0.4
95% Confidence Interval for Mean		Lower Bound	-0.91
		Upper Bound	0.11

No.= number, %= percentage

Table (2) shows that 61.97% of the children with renal failure had normal weight their BMI for age (Z score) between (-2 to 1). 8.45% had overweight and 12.68% had obesity. The minimum BMI of children was -6.61, maximum BMI was 6.97 and the mean of their BMI was -0.4 which is between (-0.91 to 0.11) bounds of interval confidence 95%.

4. Conclusions

Boys affected more than girls by the disease. One third of children were at school age. About two third of children had a normal weight their BMI for age (Z score) that give the present study a good picture because of the early detection of the disease and thus the early stage of dialysis during the first phase of the disease and not delay the management for a long time months or years, may not effects on growth significantly.

5. Recommendations and Suggestions

Continuous education, play an important role in health education lectures to nurses related to kidney failure in children especially includes: Nutrition, medication and complications and their effects on children growth and development, anthropometric measurement and thrive indicator.

Continuous education for parents who have children with CKD; emphasize the kidney failure effects of disease on

children's growth and development. Advice of children's parents' about diet medication, regular visits to the center of dialysis to follow their child's treatment and general health conditions.

Expand the study to involve a big size sample of children from all dialysis centers in Iraqi provinces to become a more representative to represent a good picture about the effect of chronic kidney diseases on children's health .

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