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Associations between Blood Pressure and the Adherence to Fluid, Diet, and Medication among Children Undergoing Hemodialysis in the Gaza Strip

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Dedication

All the kind feelings to my father and my mother who are praying and encouraged me all the time ….

My sincere gratitude to my husband and my children who supported me all the way through this study …

Special thanks to my brothers and sisters for their support, which provided me the energy to complete this study ….

I would like to express my empathy to all the children with CKD who participated in this study … I pray for them for better health and wellness

My great appreciation to my colleagues who supported me all the way during this study.

Afaf Abdelatif Abu Nemer

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed:

Afaf Abdelatif Abu Nemer

…../…../…...

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First of all, praise to Allah, the lord of the world, and peace and blessings of Allah be upon our prophet Muhammad, all thanks for Allah who granted me the capability to accomplish this thesis.

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I would like to convey my warm thanks to all the nurses who are working in the dialysis units their cooperation during data collection.

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Abstract

Chronic kidney disease is a progressive and irreversible kidney damage associated with decreased glomerular filtration rate. This purpose of the study was to identify the relationship between adherence to diet, fluid, medication, and blood pressure in pediatric patients with CKD undergoing hemodialysis in governmental hospitals in Gaza Strip. The study utilized a descriptive, cross-sectional design. The population of the study consisted of 49 children, and the sample of the study consisted of 43 children with CKD and undergoing hemodialysis (census) with response rate 87.7%. The researcher developed a questionnaire for data collection. The questionnaire consisted of sociodemographic characteristics, adherence to diet, adherence to fluid restriction, measurement of Blood Pressure, role of the nurse in monitoring adherence, and Morisky Medication Adherence Scale (MMAS). The questionnaire distributed to a panel of experts for content validity, and a pilot study carried out on 20 children to check reliability of the questionnaire, and Cronbache alpha for the role of the nurses in monitoring the adherence was 0.79 and for MMAS was 0.92. The researcher used SPSS version 22 for data analysis. Statistical analysis included frequencies, percentage, means, standard deviation, independent (t) test, One way ANOVA, and Pearson correlation test. The results showed that 69.8% of study participants were male children and 30.2% were female children, with mean age 11.78±4.52 years, 44.2% had primary school education and 30.2% were preschoolers. In addition, 88.4% of study participants had hypertension, and on dialysis for 6 months to 8 years with mean 3.73±2.26 year. Furthermore, The results indicated poor adherence to diet as pre-dialysis serum K^+ ranged from 4.27 to 7.27 mg/dl (m= 5.49±0.77 mg/dl), pre-dialysis serum PO_4 ranged from 2.67 to 11.83 mg/dl (m= 6.52±1.98 mg/dl), pre-dialysis serum BUN ranged from 55.33 to 292.0 mg/dl (m= 161.04±52.42 mg/dl). Interdialytic weight gain ranged from 0.10 g to 3.83 kg (m= 1.73±0.86 kg). The results also indicated low adherence to antihypertensive medication among CKD patients with mean score 4.5 on Morisky scale with 84.2% of children lad low adherence to medication.The nurses showed high level (95.65%) of monitoring the adherence of their patients concerning diet, fluid intake, and medication. In general, the results showed that 7% of study participants were fully adhered to diet, 88.4% were fully adhered to fluids intake, and 36.8% were fully adhered to anti-hypertensive medication. Mean systolic BP at pre-dialysis phase was 129.66±19.50 mmHg and mean diastolic BP was 78.58±13.52 mmHg. There was statistically significant correlation between diastolic BP and fluid intake (P= 0.03), diet and medication (P= 0.04), and between BP and number of hours per session of dialysis. There were statistically no significant differences in SBP and DBP related to gender, age, place of residency, family income, parents' level of education, and years on dialysis, while secondary school children had significant higher DBP, and children from Al Rantesy hospital had significantly lower SBP and DBP. In addition, 12 years old and more and secondary schoolchildrenshowed higher adherence to fluid intake. Moreover, children on dialysis for less than five years had higher level of BUN and lower adherence to fluid intake. The study concluded that interventions should focus on both patient factors and system problems that compromise the patient's ability to adhere to treatment program. However, nurses' role is important in identifying barriers to adherence, and offer strategies to help patients improve adherence to treatment program.

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List of Abbreviations

ABPM	Ambulatory BP monitoring
ACE	Angiotensin Converting Enzymes
ANZDATA	Australia and New Zealand Dialysis and Transplant Registry
BP	Blood Pressure
BUN	Blood Urea Nitrogen
CAKUT	Congenital Anomalies of the Kidney and Urinary Tract
CDC	Centers for Disease Control and prevention
CKD	Chronic Kidney Disease
CKiD	Chronic Kidney Disease in Children
CVDs	Cardiovascular Diseases
DBP	Diastolic Blood Pressure
DW	Dry Weight
ESRD	End Stage Renal Disease
GFR	Glomerulo Filtration Rate
GS	Gaza Strip
HD	Hemodialysis
HTN	Hypertension
IDW	Interdialytic Weight
IDWG	Interdialytic weight gain
K^+	Potassium
KDIGO	Kidney Disease: Improving Global Outcomes
MMAS	Morisky Medication Adherence Scale
MOH	Ministry of Health
NGOs	Non-Governmental Organizations
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
PCBS	Palestinian Center Bureau of Statistics
Pmarp	Per Million of Age-Related Population
Pmpp	Per Million Pediatric Population

PO_4	Phosphate
RRT	Renal Replacement Therapy
RVD	Renovascular Diseases
SBP	Systolic Blood Pressure
SPSS	Statistical Package for Social Sciences
UF	Ultrafiltration
UNRWA	United Nations Relief and Works Agency for the Palestinian Refugees in the Near East
WB	West Bank
WHO	World Health Organization