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RESEARCH ARTICLE

Implementing Teaching Guidelines on Quality of Life and Adaptation on Hemodialysis Patients.

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Abstract

Background: Quality of life (HRQOL) of patients End Stage Renal Disease (ESRD) is influenced by the disease itself and by the type of replacement therapy. Clinical practice guidelines were established to provide recommended ranges for parameters associated with management of ESRD patients. The aim of this study is to assess the QOL and adaptation in patients with ESRD on regular HD and to study the implantation of teaching of the European best practice guidelines on those types of patients.

Methods: Prospective study which was carried out on 95 patients. Two different tools were used in data collection to all subjects: Tool 1: Assessment sheet consists of four parts includes patients' socio demographic criteria, medical history, clinical data and laboratory investigations. Tool 2: QOL and adaptation assessment using Arabic form of SF-36 and brief cope.

Results: There were statistically significant improvement of HB, creatinine level, urea reduction ratio, phosphorus and albumin level after teaching of the guidelines. There were no statistically significant improvement of WBC, PLT, calcium level, kt/v and PTH level. There was statistically no-significant increased QOL in all domains after teaching of guidelines. There was severe decrease in all QOL domains. Median range of physical function was 54.50 (27.70 – 100) and mean limitation due to both physical health and emotional problems was 51.35 ± 21.08 and 51.40 ± 20.61 respectively. While mean energy feeling, Emotional wellbeing, Social functioning, Pain, General health were 48.91 ± 18.13 , 49.56 ± 18.33 , 43.83 ± 18.76 , 58.20 ± 23.86 and 55.10 ± 18.89 in order.

Conclusion: HRQOL is much lower for HD patients. The implementation of teaching guidelines has a positive effect on the studied patients' total knowledge and most of laboratory parameters while it has no significant effect on QOL for studied patients regarding almost domains. Continuous education should be provided by the healthcare team for patients.

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Introduction:-

End-stage renal disease (ESRD) is a debilitating, chronic condition whereby the kidney failure requires artificial means of excretion for survival. The primary means to achieve this are by peritoneal dialysis or haemo-dialysis (done several times weekly). Consequently, patients with ESRD undergo a number of lifestyle, dietary, and fluid restrictions in order to accommodate their illness. These lifestyle restrictions significantly impact on social functioning with patients performing a balancing act to ensure maintenance of vitamin, iron, and protein levels. Such restrictions can impact on patients' illness beliefs, sense of personal control leading to anxiety and depression, inhibiting coping, and adjustment⁽¹⁾

Health-related quality of life (HRQOL) refers to the measure of a patient's functioning, well-being, and general health perception in each of three domains: physical, psychological, and social. Along with survival and other types of clinical outcomes, patient quality of life (QOL) is an important indicator of the effectiveness of the medical care they receive. QOL of patients with end stage renal disease (ESRD) is influenced by the disease itself and by the type of replacement therapy. Numerous studies have identified the effect of such factors as anemia, age, comorbidity, and depression on QOL⁽²⁾.

Although advances in dialysis treatment have contributed to improved survival of patients with ESRD, HRQOL is much lower for those patients than for the general population⁽³⁾.

People on dialysis must be shown that they can control certain aspects of their lives and health, and that they indeed have the potential to live long and productive lives through engaged in coordinated program of medical treatment, education, exercise, counseling and diet management⁽⁴⁾.

Hemodialysis in Egypt:-

Egypt is one of the most populous countries in Africa and the Middle East.

More than 1050 HD units are available and distributed in many parts of the country. Dialysis still imposed high costs for treatment on most patients with ESRD. Most patients with ESRD have low income as reported by the Central Board of Statistics of Egypt. In 2009, the gross national income per capita was US\$ 5470 per year. On the other hand, yearly costs for thrice-weekly HD, 4 hours per session, were US\$ 3250.

The hemodialysis centers, whether private or governmental, are under supervision by the Egyptian Ministry of Health (MOH). However, no Egyptian guidelines or approved guidelines to standardize the practice of hemodialysis are implemented in Egypt. Therefore, hemodialysis is not uniformly practiced across the different centers in Egypt. Adding to this, the practice of hemodialysis in some university centers; considered the highest level of care provision, showed no more than partial compliance with the international guidelines⁽⁵⁾.

Clinical practice guidelines were established to provide recommended ranges for parameters associated with management of ESRD patients⁽⁶⁻⁹⁾. These guidelines addressed quality of care of ESRD with regard to the vascular access, anemia management, bone metabolism and nutritional assessments.

The aim of this study is to assess and evaluate the quality of life and adaptation in patients with ESRD on regular hemodialysis and to study the implantation of teaching of the European best practice guidelines⁽⁹⁾ on those types of patients.

Patients and Methods:

The study was carried out on 95 patients from two hemodialysis units; dialysis Center at Zagazig University Hospital and Mansoura International Special Hospital. They were recruited from the period between January 2015 to January 2016.

Official permission was obtained from the head of the hemodialysis department and from the head nurse at the three study settings to conduct the study. Informed consent was taken from the participant or their relatives and after getting approval from our research committee in faculty of medicine, Zagazig University Hospital. Nature and aim of the study was explained to each member of the participants. The data were collected throughout three phases of assessment.

The first phase was done prior to conducting the teaching guidelines. The second phase was done immediately post implementing teaching guidelines. The third phase was done three months after implementing teaching guidelines. Teaching guidelines were conducted to patients through eight sessions for 8 weeks as one session per week which lasted from 30-45 minutes. The teaching guidelines were applied for the patients during hemodialysis session after the beginning of the session by one hour for every group of four patients and sometimes for each patient according to his condition. The media which used includes: illustrative pictures, videotapes and handouts which constructed in a suitable manner for educated and illiterate patients and given for every patients as a gift.

Inclusion Criteria:-

The patients was selected from both sex with average age (18-65) and with specific criteria such as on regular hemodialysis at least six months and three or two hemodialysis sessions per week and who agreed to participate in this study.

Exclusion Criteria:-

Patients who can't do self-care activity such as patients with cerebral stroke and patients with major comorbidities such as decompensated liver diseases, decompensated heart failure ,acquired immunodeficiency syndrome (AIDS), evident acute infection, malignancy were excluded from the study.

Two different tools were used in data collection to all subjects:-

Tool 1:- Assessment sheet consists of four parts includes: patients' socio demographic criteria, medical history, clinical data and laboratory investigations. It includes 4 parts:

Part 1: Patients' socio-demographic criteria which includes patients' age, sex, occupation, marital status, monthly income, health insurance and educational level.

Part 2: Patients' medical history includes: duration of hemodialysis, cause of renal failure, any other comorbidities , hours of dialysis per session, number of hemodialysis session per week, Type, numbers and complications of vascular access, subjective global assessment(SGA, medical history which include:weight change after starting dialysis, change in dietary intake after dialysis, gastrointestinal symptoms (nausea ,vomiting, anorexia, diarrhea) and functional capacity change after dialysis].

Part 3: clinical data includes: patients' Body weight [pre and post dialysis session], height, dry, body mass index, mid arm circumference, and physical examination.

Part 4: Laboratory investigations: it includes: complete blood count, blood urea nitrogen (before and after dialysis), urea reduction ratio, serum creatinine, serum calcium, phosphorus, PTH, albumin level and dialysis adequacy index (kt/v).

Tool 2:- QOL and adaptation assessment using Arabic form of SF-36 and brief cope.The Brief COPE scale was proposed to assess a broad scope of coping behaviour among adults for all condition, illnesses or non-illnesses The scale is rated by the four-point likert scale and comprises 28 items, ranging from "I haven't been doing this at all" (score one) to "I have been doing this a lot" (score four) 7. The higher score represents greater coping strategies used by the respondents7. In total, 14 dimensions (two items for every dimension) are put forward by this scale. They are selfdistraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion and self-blame⁽¹⁰⁾

Face to face conversation was done with patients to assess their quality of life and their adaptation. Full clinical assessment and laboratory investigations were taken then Guidelines were conducted then reevaluation of patients were done after three months of the implementation of the guidelines.

Statistical Analysis:-

All data were collected, tabulated and statistically analyzed using SPSS 18.0 for windows (SPSS Inc., Chicago, IL, USA). Continuous data are expressed as the mean \pm SD & median (range), and the categorical data are expressed as a number(percentage). Continuous variables were checked for normality by using Shapiro-Wilk test. Independent samples Student's t-test test was used to compare two groups of normally distributed data. Mann Whitney U test was used to compare two groups of non-normally distributed data. Paired t test was used to compare two dependent groups of normally distributed data. Wilcoxon signed ranks was used to compare two dependent groups of non-normally distributed data. Categorical data were compared using the Chi-square (χ^2) test or Fisher's exact test when appropriate.All tests were two tailed. $p < 0.05$ was considered statistically significant (S), $p < 0.001$ was considered highly statistically significant (HS), and $p > 0.05$ was considered non statistically significant (NS).

Results:-

Face to face conversation was done with 105 patients to assess their quality of life and their adaptation. Full clinical assessment and laboratory investigations were taken then Guidelines were conducted followed by revaluation after three months of the implementation of the guidelines.5 patients were excluded due to non-compliance and another 5 were excluded due to serious complications don't match with inclusion criteria. Finally 95 patients were included in this study (34 females and 61 males).

Table 1 shows Socio-demographic characteristics of the study group. They were 34 females and 61 males. (59.8%) of patients their age was 40 years and above followed by nearly (17.4%) of patients their age was 20 years and above. While (22.8%) of patients their age was 60 years and above. Mean of age for patients was 50.86 ± 11.57 years old with age rang from 23 – 71 years. They were receiving 2-3 hemodialysis sessions pwe week at both dialysis centers.

Majority (80.4%) of the patients were married while (10.1%) of them were divorced and only 9.5% was single. In relation to the educational level, (34.8%) of them had studied till secondary school, (16.3%) are illiterate, (19.6%) can only read and write, (17.4%) are industrial education and just only (10%) of patients are highly educated. For job, almost one third of them (32.6%) of them had no job, (16.3%) were employee, (14.1%) were skilled worker, only (5%) were student and (31.5%) were housewife.

Concerning monthly income, near one third (39.1%) of patients have very low monthly income below 1000LE/month. Above half (60.9%) of the patients had monthly income more than 1000 LE/month. However only (18.9%) of the patients had enough monthly income to afford their medications and (65.2%) of patients has no medical insurance.

Causes of ESRD and the co-morbidities In the studied group:-

The results showed that in (35.9%) of patients, hypertension was the main cause of ESRD and in (33.7%) of patients, diabetis mellitis was the seconed main cause of ESRD. In (10.9%) of patients, Chronic glomerulonephritis was the main cause of their diseas. polycystic kidney diases was found in 5.4% of patients, while (13%) of patients had obstructive uropathy. drug induced tubulointerstitial nephritis was the main cause of the disease in 10.9% of patients.. (8.7%) of patients were of unknown causes and only (5.4%) of patients were due to SLE. See table 2

Nutritional status:-

Serum albumin level was 4.01 ± 0.33 before imlementing the teaching guidllines inceasrd to 4.09 ± 0.35 after implemnting teaching guidleines with highly statistically effect $p < 0.001$ and According to SGA. this study showed (54%) of patients was normal to mild malnourished and 46% was moderate to sever malnourish status. Mean \pm SD was 11.40 ± 3.87 . Table 3

Vasculr Acess:-

In (85.9%) of stuidied group, Arteriovenous fistula (AVF) was the vacular access for HD. While central venous catheter represented (8.7%) and Arteriovenous graft (AVG) represented only 5.4% of all vascular access.

The effects of implementing teaching of the guidelines on the laboratory results of the studied group:-

There were statistically significant improvement of HB, creatinine level, urea reduction ratio, phosphorus control and albumin level after teaching of guidelines. There were none statistically significant improvement of WBC, PLT, calcium level, kt/v and PTH level. While there were highly statistically significant improvement of urea level post dialysis. See table 4

Brief Coping in the studied group:-

The Median (Range) of Emotional focused coping was 15 (6 – 24) Use of emotional support (4.90 ± 1.89): excellent, Positive reframing (3.68 ± 1.65): excellent, Religion (6.06 ± 1.47): very excellent. these styles were the most used among the study group. The median range of mal-adaptation coping styles was 18 (12 – 48) Venting (3.48 ± 1.86): adequete, Behavioral disengagement (3.52 ± 1.62): adequete, Self distraction (3.40 ± 1.66): adequete. Self blame (3.65 ± 1.75): excellent, Substance use (2.91 ± 1.47): poor, Denial (2.93 ± 1.35): poor. The median range of the daptive coping styles was 8 (4 – 16). Acceptance (4.88 ± 2.19): very excellent, Humor (3.86 ± 1.71): excellent. See table 5

QOL after implmenting the teaching guidelines using QOL (SF-36):-

There was statistically non-significant increased QOL in all domains after teaching of guidelines. Also there was sever decrease in all QOL domains in hemodialysis patients. Median range of physical function was 54.50 (27.70 – 100) and mean limitation due to both physical health and emotional problems was 51.35 ± 21.08 and 51.40 ± 20.61 respectefly. while mean energy feeling, Emotional wellbeing, Social functioning, Pain, General health were 48.91 ± 18.13 , 49.56 ± 18.33 , 43.83 ± 18.76 , 58.20 ± 23.86 and 55.10 ± 18.89 in order. Table 6

Discussion:-

End stage renal disease is not only a clinical concern, but also a growing economic problem. Therefore, any early stage medical intervention that may prevent the initiation or progression of ESRD is extremely important. Clinical practice guidelines for HD serve to identify and promote best practice in the delivery of HD and have set clinical standards to allow scientific based comparison of all key aspects of the HD prescription, laboratory data and patient outcomes.

The present study showed that there is partial compliance to the best European guidelines in the study centers. Vascular access creation rate showed excellent adhesion to the best European guidelines in our units. AVF was the predominant dialysis access used in prevalent dialysis patients, whereas CVC was used in only 9% of prevalent cases. The lower prevalence rate of CVC among dialysis patients in the present study is attributed to two main reasons 1) high rate of AVF creation and the relatively long duration of RRT among prevalent cases of the study unit. DOPPS has shown that dialysis facilities with higher catheter use display substantially higher risks of mortality and all cause hospitalization. DOPPS⁽⁸⁾ analyses suggest that reducing catheter use could provide one of the largest possible gains in patient longevity in many participating countries. Several studies have shown variable rates of AVF use in different countries. AVF accounts for 80% of all vascular access in Spain, 53% of prevalent Canadian patients and 91% of prevalent dialysis patients in Tehran.

Regarding nutritional status, the present study revealed another area of excellent compliance to best European guidelines is nutrition. 67% of prevalent dialysis patients had serum albumin level $>4\text{g/l}$ with median range 4.10 (2.80 – 4.90). 54% of patients had SGA scores in the range of 6- 7 (mild malnutrition to well nourished). However, our unit lacks a dedicated dietician and we do not monitor regularly other nutritional indicators like energy and protein intake, muscle mass, serum bicarbonate and visceral protein pools as recommended by the best European.

Achieving best European target for anemia is challenging in any developing country because of the limited governmental budget and low personal incomes. Correction of anemia to the best European guidelines target of 11-12g/dl was achievable in 37% of our dialysis cases. The mean value of Hgb in our study (10.45 ± 1.81) is lower than reported by the DOPPS⁽¹¹⁾ study. Mean Hgb levels were 12g/dL in Sweden; 11.6 to 11.7g/dL in the United States, Spain, Belgium and Canada; 11.1 to 11.5g/dL in Australia/New Zealand, Germany, Italy, the United Kingdom and France; and 10.1 g/dL in Japan. Correction of anemia was associated with improved wellbeing, quality of life, cardiac There was weak area regarding calcium and phosphorus control within implementation of the EBPG in our dialysis patients where the Mean serum phosphorus was 5.46 ± 1.63 mg/dl in our patients during the study period and around 60% of them had serum phosphorus more than 5.5mg/dl. These data are comparable to the data reported by the DOPPS⁽¹¹⁾ study. In the overall 7 countries, serum phosphorus by guideline categories above $>5.5\text{mg/d}$ was reported in 50.4% of patients (DOPPS I, 1999) and in 46.6% of patients (DOPPS II, 2002)⁽¹²⁾. The main reasons of poor phosphate control in our study group are non-compliance to dietary restrictions, limited affordable expensive non calcium containing phosphate binders and limited chances for getting more frequent dialysis sessions.

In our study, there was poor control of secondary hyperparathyroidism in our dialysis patients as the PTH level was on the target range of 150-300pg/ml in around 12% of our patients and in around 51% of patients had PTH levels $>600\text{pg/ml}$. Mean serum PTH level was 525.29 ± 378.65 mg/dl in our dialysis patients during the study period. The Achievement of PTH target within the best European Guidelines is the most difficult task for physicians due to difficulties in maintaining calcium and phosphorus levels within targets. The DOPPS study had reported an overall serum iPTH levels exceeding the best European target (i.e. $>300\text{pg/ml}$) in 28.6% of patients (DOPPS I, 1999) and in 26.1% of patients (DOPPS II, 2002)⁽¹²⁾.

In relation to dialysis adequacy index (Kt/V), the present study revealed mild increase in Kt/V for studied patients from pre-teaching and follow up tests as the means were 1.23 ± 0.23 , 1.27 ± 0.16 respectively. This Finding comes in accordance with the finding of Covic⁽¹¹⁾ who found increased Kt/V from baseline test to follow up tests with the means 1.41 and 1.42 respectively. Also, 66% of patients had a mean URR% >65 over the study period. We have reported persistent adequate dialysis dose among dialysis patients in the both Dialysis units. The main limitations behind the lack of achievement of URR >65 in the other patients are poor blood flow and difficulties in extending dialysis time beyond 4 hours because of high patients' turnover rate. United States Renal Data System (USRDS) report revealed that 56.7% of dialysis patients achieved (Kt/V) >1.2 .⁽¹³⁾

Regarding adaptation of patient to hemodialysis. Emotional focused coping was the most used between patients with Median range 56 (20 – 80) specially Religious motivations which reflect the nature of our culture. Mall-adaptation

coping styles such as Venting, Behavioral disengagement, Self distraction, Self blame, Substance use and denial were associated with poor quality of life.

As regard quality of life, the study showed impaired quality of life among prevalent dialysis patients. 40% of patients had SF36 scores in the range of 50-60. Development of ESRD in the middle aged subject usually lead to disruption of patients' social and physical activities with subsequent psychological distress and poor quality of life⁽¹⁴⁻¹⁵⁾. The implementation of teaching guidelines has a positive effect on the studied patients' total knowledge regarding CRF with its management and self-care activities but there was statistically non-significant effect on QOL for studied patients regarding almost domains there was lack of association between laboratory parameters and QoL scores. This finding was in agreement with the study of Mohamed A.⁽¹⁶⁾ and Ibrahim S.⁽¹⁷⁾ in Kasr Aini dialysis center which showed the lack of relation between laboratory parameters and QoL scores. This finding was in disagreement with Abdel hamed H.⁽¹⁸⁾ and Mohamed M.⁽¹⁹⁾ which showed that Teaching guidelines had a positive effect on increasing QOL for studied patients regarding almost domains except decreased QOL concerning cognitive functioning, social support, sexual functioning, vitality, burden of kidney disease and for symptoms/problems and had no effect on patients' activities performance status. This uncorrelation may suggest that socioeconomic factors, symptom burden and comorbidities are the main determinants of general health perception and physical and mental capabilities in this cohort of patients.

Conclusion:

ESRD is chronic debilitating condition and although advances in dialysis treatment have contributed to improved survival of patients with ESRD, HRQOL is much lower for those patients than for the general population

The implementation of teaching guidelines has a positive effect on the studied patients' total knowledge regarding CRF with its management and self care activities. Teaching guidelines had non significant effect on QOL for studied patients regarding almost domains. Continuous education should be provided by the healthcare team for patients. An education training team or education nurse should be trained to work in the outpatient clinic. Also it was recommended that periodic refreshment trainings for patients and their family about expected signs and symptoms, infection prevention, how to cope with chronic diseases, and life style modification.

Conflict of interest:-

The authors declare that they have no conflict of interest.

Ethical standards:-

All procedures performed in this study were in accordance with the ethical standards of the institutional and international research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Research involving human participants and/or animals:-

This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent:-

Informed consent was obtained from all individual participants included in the study.

Table 1:- Distribution of the studied patients as regards their socio-demographic characteristics.

Socio-demographic characteristics	The studied patients (N=95)	
	No.	%
Sex		
Male	61	65.2%
Female	34	34.8%
Age (years)		
Mean \pm SD	50.86 \pm 11.57	
Median (Range)	52.50 (23 – 71)	
20 – 39 years	18	17.4%
40 – 59 years	56	59.8%
\geq 60 years	21	22.8%
Marital status		
Married	75	80.4%
Divorced	11	10.1%
Single	9	9.5%
Educational status		
Illiterate	15	16.3%
Write and read	18	19.6%
Secondary school	32	34.8%
Industrial education	16	17.4%
University	8	8.7%
Postgraduate	3	3.3%
Occupation		
Employee	15	16.3%
Skilled worker	13	14.1%
No job	30	32.6%
Student	5	5.4%
Housewife	29	31.5%
Monthly income		
<1000 EP	36	39.1%
>1000 EP	56	60.9%
Monthly income per person		
Sufficient	23	24.2%
INSufficient	72	75.8%
Ability to afford medications		
Yes	18	18.9%
No	77	81.1%
Medical iNSurance		
Full pay	9	9.8%
Partial pay	23	25%
No insurance	63	65.2%

Table 2:- Percentage distribution of the studied patients as regards cause of ESR.

Cause of CRF	The studied patients (N=95)	
	No.	%
Glomerulonephritis	10	10.9%
Obstructive uropathy	12	13%
Polycystic kidney	5	5.4%
Diabetes mellitus	31	33.7%
Hypertension	33	35.9%
SLE	5	5.4%
Drug induced	10	10.9%
Other/unknown	9	8.7%
Comorbidities		
Diabetes mellitus	24	26.1%
Hypertension	30	32.6%
Heart disease	5	5.4%
Chest disease	5	5.4%
CNS or psychological disease	4	2.2%
Abdominal and liver disease	5	5.4%
Bone or muscular	15	15.2%

Table 3:- Distribution of the studied patients as regards subjective global assessment score.

Subjective global assessment	The studied patients (N=95)		
	No.	female	male
mild malnourished(>7-<21)	52	22	30
Moderate to severe malnourished(>21)	43	12	31
Mean \pm SD	11.40 \pm 3.87		
Median (Range)	10 (5 – 20)		

Table 4:- Laboratory findings among the studied patients at pre and after implementing teaching guidelines

Laboratory findings	Pre-teaching (N=95)	Pos-teaching (N=95)	Test	p-value (Sig.)
WBC ($\times 10^3/\text{mm}^3$)				
Mean \pm SD	6.30 \pm 2.38	6.64 \pm 2.22	-1.727•	0.084 (NS)
Median (Range)	5.95 (2.30 – 14.70)	6.30 (3.10 – 12.50)		
Platelet count ($\times 10^3/\text{mm}^3$)				
Mean \pm SD	181.50 \pm 68.19	198.69 \pm 82.30	-3.947•	<0.001 (HS)
Median (Range)	179 (65 – 456)	177 (44 – 456)		
HB (gm/dl)				
Mean \pm SD	10.45 \pm 1.81	10.68 \pm 1.70	2.008*	0.048 (S)
Median (Range)	10.40 (6.20 – 15.80)	10.75 (7.50 – 15.80)		
Creatinine (mg/dl)				
Mean \pm SD	10.87 \pm 2.59	10.16 \pm 2.28	-3.089	0.003 (S)
Median (Range)	10.65 (4.10 – 16.10)	10.20 (3.45 – 17.52)		
Urea predialysis				
Mean \pm SD	99.36 \pm 34.49	97.18 \pm 36	-0.567•	0.570 (NS)
Median (Range)	97.50 (38.83 – 203)	98 (36 – 191)		
Urea postdialysis				
Mean \pm SD	33.23 \pm 17.15	29.45 \pm 13.76	-3.787•	<0.001 (HS)
Median (Range)	29.84 (2.30 – 80)	26.58 (3 – 70)		
Test	-8.329•	-8.329•		
p-value (Sig.)	<0.001 (HS)	<0.001 (HS)		
URR				

Mean \pm SD	0.67 \pm 0.09	0.70 \pm 0.06	2.991	0.004
Median (Range)	0.68 (0.37 – 0.96)	0.71 (0.50 – 0.92)		(S)
Kt/V				
Mean \pm SD	1.23 \pm 0.23	1.27 \pm 0.16	-1.770•	0.077
Median (Range)	1.20 (0.50 – 1.80)	1.25 (0.90 – 1.80)		(NS)
Laboratory findings	Pre-teaching (N=95)	Pos-teaching (N=95)	Test	p-value (Sig.)
Calcium				
Mean \pm SD	8.83 \pm 0.87	8.80 \pm 0.98	-0.818•	0.413
Median (Range)	8.90 (6 – 11.17)	8.90 (4.43 – 11)		(NS)
Phosphorus				
Mean \pm SD	5.46 \pm 1.63	5.18 \pm 1.32	-2.158•	0.031
Median (Range)	5.25 (1.80 – 10.48)	5.19 (1.76 – 8.99)		(S)
PTH				
Mean \pm SD	525.29 \pm 378.65	520.79 \pm 399.85	-0.458•	0.647
Median (Range)	435 (32 – 1660)	451 (45 – 1740)		(NS)
Albumin				
Mean \pm SD	4.01 \pm 0.33	4.09 \pm 0.35	-4.497•	<0.001
Median (Range)	4.10 (2.70 – 4.80)	4.10 (2.80 – 4.90)		(HS)

• Wilcoxon signed ranks test.

p< 0.05 is significant.

Sig.: Significance.

Table 5:- Distribution of the studied patients as regards brief cope.

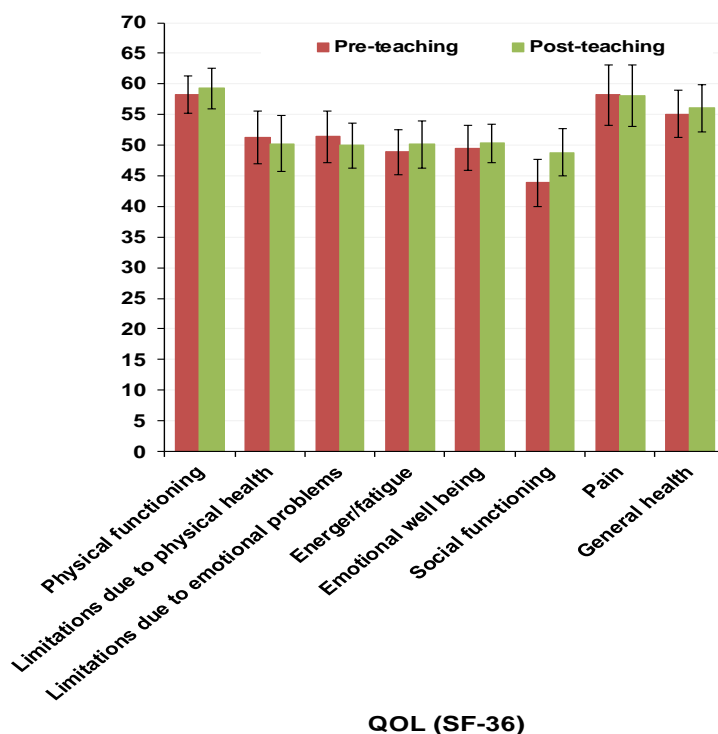
Brief cope	Mean \pm SD	Median (Range)
Venting	3.48 \pm 1.86	3 (2 – 8)
Behavioral disengagement	3.52 \pm 1.62	3 (2 – 8)
Self distraction	3.40 \pm 1.66	3 (2 – 8)
Self blame	3.65 \pm 1.75	3 (2 – 8)
Substance use	2.91 \pm 1.47	2 (2 – 8)
Denial	2.93 \pm 1.35	2 (2 – 8)
Sum of mal-adaptation coping styles	19.91 \pm 6.31	18 (12 – 48)
Acceptance	4.88 \pm 2.19	5 (2 – 8)
Humor	3.86 \pm 1.71	3 (2 – 8)
Sum of adaptive coping styles	8.75 \pm 3.26	8 (4 – 16)
Active coping	3.42 \pm 1.28	3 (2 – 8)
Planning	3.66 \pm 1.27	4 (2 – 8)
Instrumental support	4.17 \pm 1.85	4 (2 – 8)
Sum of problem-focused coping styles	11.26 \pm 3.28	10 (6 – 24)
Use of emotional support	4.90 \pm 1.89	5 (2 – 8)
Positive reframing	3.68 \pm 1.65	3 (2 – 8)
Religion	6.06 \pm 1.47	6 (2 – 8)
Sumemotion-focused coping styles	14.65 \pm 3.62	15 (6 – 24)

Table (6):QOL (SF-36) among the studied patients at pre and after implementing teaching guidelines.

QOL (SF-36)	Pre-teaching (N=95)	Pos-teaching (N=95)	Test	p-value (Sig.)
Physical functioning				
Mean \pm SD	58.32 \pm 14.88	59.27 \pm 16.24	-1.808•	0.071
Median (Range)	54.50 (27.70 – 100)	61.30 (27.70 – 100)		(NS)
Role limitationNS due to physical health				
Mean \pm SD	51.35 \pm 21.08	50.27 \pm 22.69	-1.027•	0.305
Median (Range)	50 (25 – 100)	50 (0 – 100)		(NS)
Role limitationNS due to emotional problems				
Mean \pm SD	51.40 \pm 20.61	49.95 \pm 18.14	-1.704•	0.088
Median (Range)	33.30 (33.30 – 100)	33.30 (33.30 – 100)		(NS)
Energy/fatigue				
Mean \pm SD	48.91 \pm 18.13	50.16 \pm 18.81	-0.736•	0.462
Median (Range)	50 (0 – 75)	50 (0 – 100)		(NS)
Emotional well being				
Mean \pm SD	49.56 \pm 18.33	50.33 \pm 15.50	-0.561•	0.575
Median (Range)	56 (20 – 80)	56 (20 – 80)		(NS)
Social functioning				
Mean \pm SD	43.83 \pm 18.76	44.85 \pm 18.95	-0.770•	0.441
Median (Range)	50 (0 – 100)	50 (0 – 100)		(NS)
Pain				
Mean \pm SD	58.20 \pm 23.86	58.09 \pm 24.44	-0.287•	0.774
Median (Range)	50 (25 – 100)	50 (0 – 100)		(NS)
General health				
Mean \pm SD	55.10 \pm 18.89	56.08 \pm 18.86	-1.317•	0.188
Median (Range)	60 (20 – 90)	60 (20 – 90)		(NS)

• Wilcoxon signed ranks test.

p< 0.05 is significant.

**Figure 1:-** Error-bar chart shows comparison between pre-teaching and post-teaching creatinine (mg/dl), QOL (SF-36); bar represent mean, error-bar represent 95% confidence interval of mean.

References:-

1. Kimmel PcareforL, Peterson RA, et al. Psychosocial factors, behavioral compliance and survival in urban hemodialysis patients. *Kidney International*. 2001; 54(1):245–254.
2. Valderrabano F, Jofre R, et al . Quality of life in end-stage renal disease patients. Department of Nephrology, Hospital General Universitario Gregorio Marañón, Madrid, Spain. *Am J Kidney Dis*.2001; 38(3), 443-64.
3. Al-Garini R. S. Assessment of Health- Related Quality of Life among End-Stage Renal Disease (ESRD) Adult patients Undergoing Hemodialysis at the Eastern Region. Master Thesis. Collage of Nursing, King Saudi University.2006;.P.81.
4. Wingard R.Patient Education and the Nursing Process: Meeting the Patient's needs.*Nephrology Nursing Journal*.2008; 32 (2): .211.
5. Ibrahim S. Hatem D et al., (2009). Quality of Care Assessment and Adherence to the International Guidelines Considering Dialysis, Water Treatment and Protection Against Transmission of Infections in University Hospital Based Dialysis Unit in Cairo, Egypt.): *Interna Med. J. Cairo Univ*. 2009;Vol. 77, No. 1, March: 155-160.
6. K/DOQI clinical practice guidelines for chronic kidney disease: Evaluation, classification and stratification. *Am. J. Kidney Dis*. 2002; 39: S1-S266.
7. National Kidney Foundation: KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for Anemia in Chronic Kidney Disease. *Am. J. Kidney Dis*.2006; 47 (Suppl 3): S50.
8. National Kidney Foundation: KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for 2006 Updates: Hemodialysis adequacy, peritoneal dialysis adequacy and vascular access. *Am. J. Kidney Dis*. 2006;48: S31, 200
9. European Best Practice guidelines Expert Group on Hemodialysis: European Renal Association. <http://www.ndt-educational.org/guidelines.asp>
10. Carver CS. You want to measure coping but your protocol's too long. Consider the Brief COPE. *International Journal of Behavioral Medicine* 1997; 4 (1): 92-100.
11. AMATO R.L.: Water treatment for hemodialysis-updated to include the latest AAMI standards for dialysate. *Nephrol.Nurs.J*. 2005 ;. 32: 151-167, 2005.
12. Locateli F., PisoniR.et al. Anemia in hemodialysis patients of five European countries: Association with morbidity and mortality in the Dialysis Outcomes and Practice Patterns Study (DOPPS). *Nephrol. Dial. Transplant..* 2004; 19: 121-132.
13. Portf.K., Pisonir .L., Bommer J., et al. Improving outcomes for dialysis patients in the international Dialysis Outcomes and Practice Patterns Study. *Clin. J. Am. Soc. Nephrol*.2006; 1: 246-255.
14. Tentori F., Hunt W., RohrscheIb M., et al. Which targets in clinical practice guidelines are associated with improved survival in a large dialysis organization? *J. Am. Soc. Nephrol*.2007; 18: 2377-2384.
15. Covic A., SeicaA.,et al. A longitudinal study on changes in quality of life and illness representations in long-term hemodialysis patients with low comorbidity. "Parhon" University Hospital. *A Journal of Clinical Medicine*,2006; 1 (4): 12-19.
16. Mohamed A. K.: Quality of Life of Patients with End-Stage Renal Disease. M.Sc.N. Thesis, Faculty of Nursing, Ain Shams University, PP. 2001;101–105, 149, 155, 164.
17. IBRAHIM S. and EL SALAMONY O.: Depression, Quality of Life and Malnutrition-Inflammation Scores in Hemodialysis Patients. *AJN*.2008, 28: 784-791.
18. Abd-El hamed H. M.: Changes in quality of life of patients with end–stage renal disease. Master Thesis. Faculty of nursing, Zagazig University. P.P .2006;162,163,166
19. Mohamed M. M.: Self-Care Learning Package: Effect on Patients' Quality of Life Undergoing Hemodialysis Therapy. D.N.Sc. Thesis, Faculty of Nursing, Ain Shams University. 2007; P. 139.