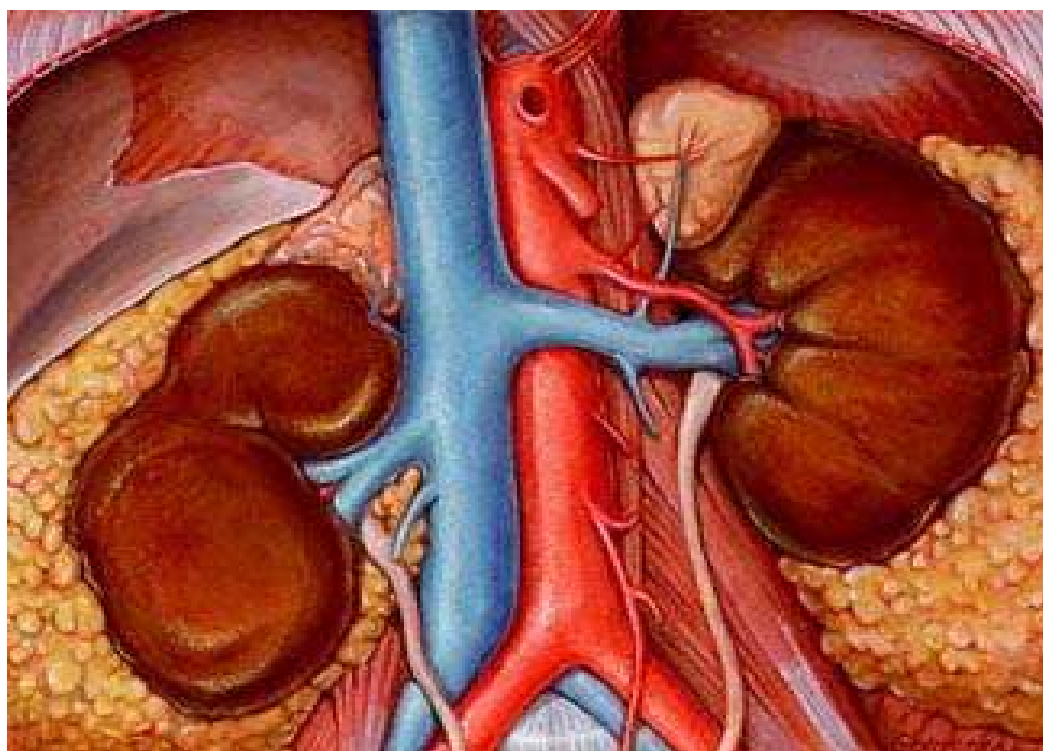


Palestine Health Research Results nephrology disease



October 2015

كلمة الإدارة العامة لتنمية القوى البشرية في وزارة الصحة

رغم قسوة الظروف وشدة الحصار لازالت مسيرة البحث الصحي مستمرة وتنتج البحوث التي تصل بجودتها للعالمية، وفي هذا المجال يسعدني أن أقدم لكم ملخصات ونتائج وتوصيات عدد من البحوث "رسائل الماجستير" التي أجريت في مرافق وزارة الصحة الفلسطينية في قطاع غزة، والتي تم منحها التسهيلات اللازمة لتنفيذها في وزارة الصحة، حيث تم تصنيف هذه الرسائل العلمية لموضوعات منفصلة وكانت البداية بالأبحاث التي تخص مرض السكري لما له من أهمية كبيرة، ولن يقف هذا العمل عند هذه الموضوع بل سيستمر ليصل باقي الفروع الصحية والإدارية إن شاء الله..

هذا وقد عملت الإدارة العامة لتنمية القوى البشرية على نشر نتائج وملخصات البحوث التي تحصل عليها على موقعها على شبكة الانترنت لتصل لذوي العلاقة؛ من أجل الاستفادة المثلى من نتائجها وتوظيفها في التخطيط والتطوير والتحسين في الخدمات الصحية للوصول للرفاه المنشود للإنسان الفلسطيني الذي نعتز بخدمته.

د. ناصر رأفت أبو شعبان

مدير عام تنمية القوى البشرية

المقدمة:

يعتبر البحث العلمي من أهم الأنشطة الإنسانية التي يمارسها الإنسان فوق سطح كوكب الأرض في هذا العصر وفي العصور السابقة، وقد كان البحث العلمي على مر الأزمنة أساس النهضات والتقدم والتطور، وما ننعم به اليوم من رقي وحضارة هو نتاج البحث العلمي المستمر بمختلف مجالاته.

ويعرف البحث الصحي بأنه كل جهد علمي منظم يهدف إلى تنمية المعرفة و المهارات في المجالات الصحية المختلفة و إيجاد الطرق الأفضل للوقاية والعلاج من الأمراض وكذلك تطوير نظام صحي قادر على الاستجابة بفعالية ونجاعة لاحتياجات السكان في ظل بيئة صحية ديناميكية.

وأيضا فإن البحوث الصحية يمكن أن توفر معلومات هامة حول اتجاهات الأمراض وعوامل الخطر، ونتاج البرامج أو التدخلات الصحية العامة، وأنماط الرعاية المختلفة وتكاليف الرعاية الصحية واستخدامها، وكذلك يمكن أن توفر معلومات هامة حول فعالية التدخلات الطبية والجراحية، وتحسين استخدام الأدوية واللقاحات، أو تطوير الأجهزة الطبية، وطرق التشخيص.

كما أنها حيوية لتسجيل وتقييم الخبرة في الممارسة السريرية من أجل وضع مبادئ توجيهية لأفضل الممارسات وضمان الرعاية العالية الجودة للمرضى.

ونحن في وزارة الصحة وإدراكا منا للدور الهام للبحث العلمي وكذلك للمسئولية والدور المناط بنا في قيادة مسار التطوير والتدريب أتحنا الفرصة للباحثين وطلبة كليات الطب والصيدلة والعلوم الطبية الأخرى لعمل الأبحاث والتدريب في مرافق وزارة الصحة المختلفة ضمن الضوابط والقوانين المنظمة والمعمول بها من أجل تحقيق الهدف والنهوض بالقطاع الصحي من خلال دعم التعليم الطبي والبحث الصحي.

ونحن في الإدارة العامة لتنمية القوى البشرية نقوم بتنظيم ومتابعة هذا النشاط البحثي من خلال دائرة البحث الصحي التي تقوم في هذا المجال بـ:

- الإشراف على هذا النشاط البحثي داخل مرافق الوزارة
- توجيه الباحثين للأماكن التي سيقومون بتنفيذ الأبحاث بها
- التأكد من الإجراءات التي تحفظ حقوق المبحوثين
- تدقيق الجانب الأخلاقي من الأبحاث
- الحفاظ على ممتلكات الوزارة.
- توثيق الأبحاث التي يتم إنجازها
- توصيل نتائج البحوث لذوي العلاقة والمهتمين وصناع القرار في الوزارة.
- عمل الإحصائيات والتقارير المتعلقة بالأبحاث

لكن يبقى السؤال الملح وهو كيف يمكن الاستفادة من هذه الأبحاث ونتائجها في تطوير وتحسين الخدمات الصحية؟ لذلك قمنا بإنشاء صفحة على شبكة الانترنت (ضمن موقع الوزارة) خاصة بعرض ملخصات البحوث التي تجرى في الوزارة، كما قمنا بتصنيف رسائل الماجستير (التي حصلنا عليها من الجامعات و الباحثين) إلى عدة موضوعات وقد بدأنا بإعداد مجلة تشمل ملخصات الرسائل العلمية ونتائجها وتوصياتها من أجل توصيلها لذوي العلاقة والمهتمين وصناع القرار في المستويين الطبي والإداري.

Table of Contents

No.	Title	page
1	Leptin status and some biochemical parameters in type 2 diabetic males with diabetic nephropathy in Gaza Strip	5
2	Parathormone, Calcium and Phosphorus Levels in Hemodialysis Patients at Al-Shifa Hospital, Gaza-Palestine	8
3	Detection of Anti-Erythropoietin Antibodies among Hemodialysed Patients Treated with Recombinant Human-Erythropoietin	11
4	Cystatin C and Other Markers of Nephropathy Among Type 2 Diabetic Patients in Gaza Strip	14
5	Risk Factors of Cardiovascular Disease among Children with Chronic Kidney Disease in Gaza strip	17
6	Impact of Hemodialysis on Nutritional Status in Patients with End-Stage Renal Disease Aged 19-59 Years at Al-Shifa Hospital, Gaza-Palestine	19
7	Homocysteine levels in chronic kidney disease patients in Gaza Governorate, Gaza Strip	22
8	Adequacy of Glycemic Control and Serum Lipid Profile in Hemodialysis of Palestinian Patients with Diabetes Mellitus	24
9	The Role of N-Acetylcysteine or N-Acetylcysteine plus Ascorbic Acid in Prevention of Contrast-Induced Nephropathy in High-Risk Patients With Ischemic Heart Disease.	27
10	Chronic Renal Failure Patients in the Gaza Strip "Study in Medical Geography	29
11	Renoprotective Effect of Aliskiren Monotherapy and Aliskiren-Pentoxifylline Combination vs Other Renin-Angiotensin System Inhibitors in Hypertensive-Diabetic Type 2 Patients with Diabetic Nephropathy (Gaza Strip)	33
12	Homocysteine and hematological indices in hemodialysis patients at Al-Shifa hospital, Gaza Strip	36
13	Effect of Immunosuppressive Drugs on Kidney Function among Kidney Transplanted Patients in Gaza Strip	38
14	Detection of Some Enzymes and Transferrin as Early Diagnostic Markers for Diabetic Nephropathy among Type-2 Diabetic Patients in Gaza	40
15	قلق المستقبل لدى مرضى الفشل الكلوي وعلاقته ببعض المتغيرات	42

Leptin status and some biochemical parameters in type 2 diabetic males with diabetic nephropathy in Gaza Strip

By:
Ayman M. Abu Mustafa

Supervisor:
Prof. Maged M. Yassin

*Islamic University – Gaza
Gaza-Palestine
(2011)*

Abstract

Background: diabetic nephropathy (DN) is the appearance of persistent clinical albuminuria in an individual with diabetes. Although the role of leptin hormone in obesity is well established, its status in DN stages is still unclear and controversial.

Objective: To assess leptin status and some biochemical parameters in type 2 diabetic males with diabetic nephropathy in Gaza Strip.

Materials and Methods: Data were obtained from questionnaire interview, and biochemical analysis of blood and urine samples of 150 type 2 diabetic patients.

ELISA and turbidimetric techniques were used to investigate serum leptin and urinary albumin levels respectively. Enzymatic and colorimetric techniques were used to investigate urea, creatinine and lipid profile. To study DN, 22 macroalbuminuric patients found in the 150 diabetic patients were involved. The same number of diabetic patients were selected and classified into normo- and microalbuminuric groups. The control group also included 22 non diabetics. All groups were matched for age and BMI.

Results: The average age of the controls was 49.07 ± 6.0 years whereas that of diabetic patients was 50.6 ± 6.0 years. The educational level, family history and diet were associated with diabetes ($P=0.000$). About half of patients were diabetics since ≤ 5 years. The main self-reported complications were retinopathy, cardiovascular diseases and neuropathy. The longer the duration of diabetes, the higher the percentage of self reported complications. Body mass index (BMI) was positively associated with diabetes ($P=0.038$). Serum glucose was significantly higher in diabetics compared to controls (179.4 ± 83.0 vs 85.6 ± 14.2 mg/dl, % difference=70.8, $P=0.000$). Serum urea and creatinine were lower in diabetics (24.4 ± 7.9 vs 31.5 ± 7.8 and 0.64 ± 0.19 vs 0.80 ± 0.20 mg/dl, % differences=25.4 and 22.2, respectively and $P=0.000$). Cholesterol, triglycerides and low density lipoprotein cholesterol (LDL-C) were significantly higher in diabetics (198.3 ± 38.8 , 230 ± 101.2 and 109.4 ± 37.0 mg/dl) than controls (168.1 ± 42.0 , 152.2 ± 77.8 and 68 ± 40.1 mg/dl) with % differences of 16.5, 41.0 and 24.0 %, respectively and $P=0.000$). In contrast, high density lipoprotein cholesterol (HDL-C) was significantly lower in diabetics (42.9 ± 6.3 vs. 51.5 ± 10.3 mg/dl, % difference=18.2 and $P=0.000$). Diabetic patients showed higher urinary albumin levels and GFR (110.7 ± 179.2 vs 24.3 ± 81.0 mg/g and 163.7 ± 62.0 vs 127.1 ± 343.80 ml/min/1.73m², % difference=128.0 and 25.5, respectively and $P=0.000$). Urinary creatinine level

was lower in patients (103.4 ± 44.4 vs. 148.0 ± 61.4 mg/dl and, % difference=35.5 and $P=0.547$). Normo-, micro- and macroalbuminuric patients were 79(52.5%), 49(32.6%) and 22(14.7%), respectively. Serum leptin was significantly higher in the microalbuminuric (14.6 ± 11.7 ng/ml) and the macroalbuminuric (15.6 ± 13.5 ng/ml) groups compared to control (5.9 ± 4.0 ng/ml) group ($P<0.05$). Serum glucose, Cholesterol, triglycerides, LDL-C, urinary albumin were significantly higher in diabetic nephropathy patients than controls, In contrast, serum urea, creatinine, HDL-C and urinary creatinine were lower in diabetic nephropathy patients. For the study population there were positive significant correlation between serum leptin and BMI ($r=0.410$, $P=0.000$), duration ($r=0.251$, $P=0.042$), serum glucose ($r=0.298$, $P=0.005$), cholesterol ($r=0.323$, $P=0.002$), triglycerides ($r=0.361$, $P=0.000$), LDL-C ($r=0.248$, $P=0.02$) and urinary albumin ($r=0.374$, $P=0.000$), In contrast, leptin was negatively correlated with HDL-C ($r=-0.313$, $P=0.001$) and urinary creatinine ($r=-0.256$, $P=0.016$).

Conclusions: Serum leptin hormone may consider according to the present funding new as a biomarker for progression of kidney disease in diabetic nephropathy patients.

Key words: Type 2 diabetes, diabetic nephropathy, leptin, biochemical parameters, Gaza Strip.

Conclusions

1. Diabetes was found to be associated with education, family history and diet.
2. About half of the patients had diabetes for since less than 5 years.
3. The main self-reported complications among patients were retinopathy, cardiovascular diseases and neuropathy. The longer the duration of diabetes, the higher the percentage of self reported complications.
4. The majority of diabetic patient were overweight and obese.
5. Serum glucose, cholesterol, triglycerides, low density lipoprotein cholesterol, urinary albumin and GFR were significantly higher in diabetic patients compared to controls, in contrast serum urea, creatinine, high density lipoprotein cholesterol and urinary creatinine were significantly lower in diabetics patients.
6. The percentages of micro- and macroalbuminuria was higher in patients than in controls (32.6, 14.7% vs 10.0, 2.0%, respectively).
7. Serum leptin levels were significantly higher in micro- and acroalbuminuria patients compared to controls.
8. Serum glucose, Cholesterol, triglycerides, low density lipoprotein holesterol, urinary albumin were significantly higher in diabetic nephropathy patients than controls, In contrast, serum urea, creatinine, high density lipoprotein cholesterol and urinary creatinine were lower in diabetic nephropathy patients.
9. There were positive significant correlations between leptin and body mass index, diabetes duration, serum glucose, Cholesterol, triglycerides, low density lipoprotein cholesterol and urinary albumin. On the other hand negative significant correlations were recorded for leptin with HDL-C and urinary creatinine.

Recommendations

1. Management of diabetes mellitus in term of diet and body weight is important to delay the development of diabetic nephropathy.
2. Frequent monitoring of microalbuminuria and albumin/creatinine ratio to avoid the future development of diabetic nephropathy.
3. Testing of leptin hormone in diabetic patients to could be help for detect the early stages of diabetic nephropathy patient.
4. Further studies are needed to emphasis the mechanism of leptin as a biomarker and progenitor in different stage of diabetic nephropathy.
5. Enhancement of people awareness towards diabetic nephropathy by launching educational programs and workshops on diabetes.

Parathormone, Calcium and Phosphorus Levels in Hemodialysis Patients at Al-Shifa Hospital, Gaza-Palestine

By

Hosam M. Abo Shamala

Supervisor

Prof. Mohammad E. Shubair

*Islamic University – Gaza
Gaza-Palestine
(2008)*

Abstract

Background: Many people who have severe chronic kidney disease (CKD) will eventually develop kidney failure and will require dialysis.

The Kidney Disease Outcomes Quality Initiative (KDOQI) guidelines for bone metabolism and disease in CKD (USA) recommend that, in stage 5 CKD, the target levels for calcium (Ca) (corrected for serum albumin), phosphorus (P), calcium \times phosphorus (Ca \times P) product and parathormone (PTH) levels should be maintained at 8.4-9.5 mg/dl, 3.5-5.5 mg/dl, < 55 mg²/dl² and 150-300 pg/ml, respectively.

Objective: This study aimed to assess the levels of the previously mentioned parameters in the hemodialysis (HD) patients who have been on HD for ≥ 12 months in the HD unit at Al- Shifa hospital, and comparing the results obtained with that recommended by KDOQI guidelines and with the results of a healthy control group.

Materials and Methods: Eighty HD patients (cases) (41 males, 39 females; mean age 47.2 ± 15.9 years), on HD for (mean \pm SD: 49.1 ± 38 months, range: 12-163 months), with mean HD frequency (2.6 ± 0.5 sessions weekly), were enrolled in the study. Age and sex matched healthy control subjects were included in the study.

Data were collected through a self constructed structured questionnaire and from biochemical analysis of serum calcium, albumin, phosphorus, PTH, ionized calcium, urea and creatinine of both case and control groups.

Results: It was shown that 58.7%, 77.5%, 67.5% and 86.2% among the cases were out of the target ranges for albumin-corrected serum calcium, phosphorus, calcium \times phosphorus product and PTH, respectively.

There were statistically significant differences in the mean levels of serum PTH, calcium \times phosphorus product, albumin, phosphorus and ionized calcium between cases and controls as follows: (PTH: 1715.3 ± 1706.3 vs 35.7 ± 14.7 pg/ml), (Ca \times P product: 62.7 ± 14.6 vs 40.2 ± 6.0 mg²/dl²), (albumin: 4.6 ± 0.39 vs 4.7 ± 0.3 g/dl), (P: 6.6 ± 1.4 vs 4.3 ± 0.6 mg/dl) and (ionized calcium: 3.78 ± 0.47 vs 4.7 ± 0.1 mg/dl).

On the other hand, there was no statistically significant difference in the mean levels of albumin-corrected serum calcium between cases and controls (9.5 ± 0.9 vs 9.4 ± 0.3 mg/dl).

Moreover there was a statistically significant positive correlation between serum PTH with HD duration.

There were no statistically significant differences in the mean levels of serum PTH, P, $\text{Ca} \times \text{P}$ product and corrected calcium between cases on HD for 2 sessions weekly and those on HD for 3 sessions weekly. The mean levels of all the mentioned parameters were out of the target range, except for albumin-corrected serum calcium which was in the target range. Also, the same results were obtained in the cases who were receiving vitamin D analogue (alfacalcidol) and those not receiving. It was noted that albumin-corrected serum calcium levels were close to the target range.

There was a statistically significant correlation between the mean of serum creatinine with $\text{Ca} \times \text{P}$ product or with serum P among cases.

The study revealed that there was a statistically significant relationship between the duration of HD and bone diseases.

Conclusions: The study revealed that there was a statistically significant difference in the percentage of cases with cardiovascular disease on HD for 2 sessions weekly (6.5%) and that of cases on HD for 3 sessions weekly (32.7%).

Recommendation: It is recommended that new strategies must be implemented to prevent parathyroid gland hyperplasia and to avoid the positive balance of calcium and phosphorus in the hemodialysis patients.

Key words: Hemodialysis, Phosphorus, Parathyroid gland hyperplasia, Vitamin D analogues, Gaza.

Conclusions

1- K/DOQI guidelines for mineral metabolism in hemodialysis patients were satisfied in only a small proportion of patients.

2- The majority of hemodialysis patients have highly elevated serum PTH and phosphorus levels that suggest that some of the patients have severe secondary hyperparathyroidism or more severely, tertiary hyperparathyroidism.

3- There was a marked increase in serum PTH levels with the increase of hemodialysis duration.

4- There were no differences between the averages of PTH, calcium \times phosphate product, albumin-corrected serum calcium and serum phosphorus of patients on hemodialysis 2 sessions weekly and of those on hemodialysis 3 sessions weekly.

Only, albumin-corrected serum calcium levels were in the range, while the others were highly elevated in both groups.

5- There were no differences between the averages of PTH, calcium \times phosphate product, albumin-corrected serum calcium and serum phosphorus of patients receiving oral vitamin D analogue (alfacalcidol, 0.5 μg) daily and those not receiving it. Only, albumin-corrected serum calcium levels were close to the range, while the others were highly elevated in both groups.

6- There was no correlation between PTH with albumin-corrected serum calcium, but the correlation between PTH with serum phosphorus was at the border of statistical significance in the hemodialysis patients..

7- There were no correlations between PTH with either serum urea or creatinine.

Also, there was no correlation between calcium \times phosphate product with serum urea, but the correlation with serum creatinine was statistically significant.

- 8- There were no correlations between PTH or calcium \times phosphate product with both of age or BMI of hemodialysis patients.
- 9- Many hemodialysis patients are complaining of bone and/or cardiovascular diseases. There was a statistically significant relationship between the duration of hemodialysis and bone disease.
- 10- The highly unsatisfactory results achieved in the study may be due to not implementing K/DOQI guidelines at HD unit, poor patient compliance and/or the ineffectiveness of available treatments.

Recommendations

- 1- Periodic monitoring of serum PTH ,calcium and phosphorus of the hemodialysis patients, and this require supplying the central laboratory with the necessary kits, particularly PTH kits.
- 2- Raising awareness of CKD and K/DOQI guidelines among renal physicians, the staff dealing with hemodialysis patients and the patients.
- 3- Conducting clinical trials to explore the impact of applying new methods and strategies of controlling calcium and phosphorus metabolism and of controlling parathyroid gland activity on the outcome of the CKD and hemodialysis patients.

Detection of Anti-Erythropoietin Antibodies among Hemodialysed Patients Treated with Recombinant Human-Erythropoietin

By
Darwish B. Al Quahwaji

Supervisor
Prof. Mohammad E. Shubair

Islamic University – Gaza
Gaza-Palestine
(2012)

Abstract

Background: Anemia is a well-recognized complication of progressive renal failure. The etiology of anemia in renal failure patients is multifactorial, erythropoietin (EPO) deficiency is the most important factor. The introduction of recombinant human EPO (rHuEPO) in 1986 represented a revolution in the field of nephrology and provided a significant benefit to millions of patients. Recombinant form of EPO is a sialoglycoprotein hormone that appears to be immunologically and biologically equivalent to the endogenous compound enhancing erythropoiesis. The safety profile of rHuEPO had been considered to be excellent with possible exception of hypertension and increased risk of dialysis access thrombosis. However, pure red cell aplasia (PRCA) has been recognized as occurring in some patients in response to EPO therapy. The development of neutralizing anti-EPO antibodies was found to be associated with PRCA. These antibodies probably cross react with the patient's endogenous EPO and lead to anemia that can be more severe than even before the onset of EPO therapy.

Objectives: We aimed in our study to detect and evaluate the presence of anti-EPO antibodies in patients with end stage renal disease (ESRD) on regular dialysis who are using rHuEPO and investigate the relations between serum anti-erythropoietin antibody and some biochemical and hematological markers.

Ethical considerations and Permission: An official letter of approval to conduct the study was obtained from the Helsinki Committee (Ethical Committee in Gaza Strip). Data and samples were collected without any harm to the patients and after explaining the aim of the study to the patients and having an informed consent from them.

Methods: The study was cross sectional study, we detect and evaluate the presence of anti-EPO antibodies in the blood of 80 patients with ESRD on regular dialysis who were using rHuEPO by enzyme-linked immunosorbant assay technique and investigated the relations between serum anti-erythropoietin antibody and some biochemical and hematological markers. The same apparently healthy persons were selected as control group. Both qualitative and quantitative data analysis methods were used. The Data were analyzed utilizing (SPSS 20) and The following statistical tools were used: Shapiro-Wilk test of normality, Frequency and Descriptive analysis, Chi-Square test, Independent Samples T-test Mann-Whitney T-test, and Logistic regression test.

Results: Our results showed that 18 patients (22.5%) had the anti-EPO antibodies in their blood, while 62 patients (77.5%) did not. According to the presence or absence of the anti-EPO antibodies, Patients were divided into two groups There was no significant difference between the first and second groups regarding the gender. Group 1 included 7 male (38.9%) and 11 female

(61.1%), while group 2 included 33 male (53.2%) and 29 female (46.8%). There was no significant difference between the first and second groups regarding duration of hemodialysis. Patients who were under hemodialysis for 6-12 months had more frequency of anti-EPO antibodies (33.3%) than the rest of patients. The mean age of patients was 55.1 ± 18.1 years and the mean of controls was 28.2 ± 5.8 years., patients have significant larger mean score on age.

According to hematological investigations of study population, the results revealed that the average of Hb of the patients was 8.5 ± 1.2 g/dl and its average controls was 12.8 ± 1.7 g/dl, patients have significant smaller mean score on Hb. The average of HCT of patients was 26.8 ± 4.0 % and the average of HCT of control group was 36.9 ± 4.4 %, patients have significant smaller mean score on HCT. While the average of RBCs count of the patients was 3.3 ± 0.6 million/ μ l and the average of RBCs of the controls was 4.4 ± 0.5 million/ μ l, patients have significant smaller mean score on RBCs. The average of PLT for patients was $217.4 \pm 54.6 \times 10^9/L$ and for the control group was $248.9 \pm 57.8 \times 10^9/L$, patients have significant smaller mean score on PLT. The average of WBCs of patients was $5.9 \pm 1.9 \times 10^9$ cell/L and for control group was $7.1 \pm 1.9 \times 10^9$ cell/L, patients have significant smaller mean score on WBC.

The average of Retic. of patients was 0.4 ± 0.2 % and the average of Retic. of control group was 1.1 ± 0.3 %, patients have significant smaller mean score regarding Retic. According to chemistry profile of study population, the results revealed that the average of serum Urea of patients was 150.9 ± 42.4 mg/dl and for controls was 25.5 ± 8.3 mg/dl, patients have significant larger mean score on Urea. The average of serum Creatinine of patients was 9.5 ± 3.0 mg/dl, for controls it was 0.6 ± 0.2 mg/dl, patients have significant larger mean score on Creat. The average of serum Albumin of patients was 4.1 ± 0.6 g/dl and for controls was 3.9 ± 0.2 g/dl, patients have significant larger mean score on Albumin. Also the average of serum ALT of patients was 10.5 ± 7.1 U/L and for controls it was 31.2 ± 27.6 U/L, patients have significant smaller mean score on ALT. Moreover the average of serum Iron of patients was 68.9 ± 54.3 μ g/dl and the for controls it was 85.7 ± 17.9 μ g/dl, patients have significant smaller mean score on Iron. The average of serum TIBC of patients was 427.0 ± 133.1 μ g/dl and for controls it was 317.9 ± 83.5 μ g/dl, patients have significant larger mean score on TIBC.

Conclusion: . The incidence of anti-EPO antibodies is high among hemodialysed patients treated with recombinant human-erythropoietin. Its presence is associated with increased incidence of anemia possibly due to immune-mediated inhibition of erythropoiesis as evidenced by reticulocytopenia.

Key words: *Erythropoietin, Recombinant human erythropoietin, Pure red cell aplasia, Anti erythropoietin antibodies, End stage renal disease, Gaza, Palestine.*

Conclusion

1. Our study showed that anti EPO antibodies were found to be present in significant number of hemodialysed patients treated with recombinant human EPO.
2. The development of neutralizing anti EPO antibodies was found to be associated with Anemia among hemodialysed patients treated with recombinant human EPO.
3. Our study showed that there is statistically significant difference between the mean of Hb, HCT, RBC, PLT, WBC and Retic between patients and control groups.
4. Our hematological investigations showed that only the reticulocyte count was important factor that correlated significantly with Anti-EPO antibodies.

5. Comparison of patients who have positive Anti_EPO_AB and patients who were negative Anti_EPO_AB, showed that the variables Urea, Creatinine, ALT and Albumin are insignificant variables.
6. Age, duration of hemodialysis, Iron and TIBC failed to reach asignificant value.

Recommendations

1. Launching awareness program of the possible side effect of rHuEPO.
2. Physicians should be aware of decreasing hemoglobin values in patients being treated with rHuEPO, as clinical sign of PRCA.
3. Patients who develop neutralizing antibodies to any type of recombinant human erythropoietin no longer have the opportunity to benefit from erythropoietic protein therapy and may become transfusion dependent.
- 4 . Sudden onset of refractory PRCA anemia must be managed by rHuEPO course cessation followed by diagnostic procedures for PRCA and immunosuppressive therapy.
5. Physicians should be aware of using a less immunogenic type of recombinant human erythropoietin.
6. More studies should be conducted regarding the effects of rHuEPO.

Cystatin C and Other Markers of Nephropathy Among Type 2 Diabetic Patients in Gaza Strip

By
Raffat M. El Telbani

Supervisor
Prof. Dr. Baker M. Zabut

Islamic University – Gaza
Gaza-Palestine
(2013)

Abstract

Background: Nephropathy is a significant cause of morbidity and mortality in patients with diabetes mellitus (DM). The condition is characterized by persistent albuminuria and may be decline in the glomerular filtration rate (GFR). Serum cystatin C has been proposed as a simple, accurate, and rapid endogenous marker of GFR.

Aim of the study: To assess serum levels of cystatin C and some biochemical parameters among type 2 diabetes mellitus (T2DM) patients in Gaza Strip and whether these levels vary with stages of diabetic nephropathy (DNP).

Methods: In this study, 95 patients and 95 controls were enrolled. Body mass index (BMI) and blood pressure were measured after conducting face to face interview for each participant. Morning fasting blood and urine samples were obtained for measurement of serum cystatin C, creatinine, urea, glucose, lipid profile, and urine albumin and creatinine. The albumin to creatinine ratio (ACR) was calculated. Serum cystatin C and urine albumin were measured by particle enhanced immunoturbidimetric assay.

Serum and urinary creatinine, serum urea, glucose and lipid profile were measured using a specific enzymatic assay. The patients were divided into those with normo-, micro-, and macroalbuminuria.

Results: About 51.6 % of diabetic patients had at least one diabetes complications.

Frequencies of diabetes complications were increased with increase the duration of diabetes. Diabetes was found to be associated with family history and BMI (all $P < 0.05$).

About half of patients were diabetics since 5 years or less. Serum cystatin C levels were non-significantly changed in diabetic patients compared to controls ($P > 0.05$). Serum urea and creatinine were lower in diabetics (all $P < 0.05$). Cholesterol, triglycerides and low-density lipoprotein (LDL) were significantly higher in diabetics than controls (all $P < 0.05$). In contrast, high-density lipoprotein (HDL) was significantly lower in diabetics ($P < 0.05$). Diabetic patients showed higher levels of ACR ($P < 0.05$). In contrast, urine creatinine level was lower in patients ($P < 0.05$). The results of the study showed that 28.4% of the diabetic patients had microalbuminuria and 16.8% had macroalbuminuria. The mean levels of serum cystatin C in macroalbuminuria were significantly higher than those in normoalbuminuria or microalbuminuria (all $P < 0.05$).

The mean levels of serum urea in microalbuminuria and macroalbuminuria were significantly higher than those in normoalbuminuria (all $P < 0.05$). However, the mean levels of serum creatinine in macroalbuminuria were significantly higher than those in normoalbuminuria or

microalbuminuria (all $P < 0.05$). The mean levels of ACR in macroalbuminuria were significantly higher than those in normoalbuminuria or microalbuminuria (all $P < 0.05$). In addition, the mean levels of ACR in microalbuminuria were significantly higher than in normoalbuminuria ($P < 0.05$). For diabetic patients there were positive significant correlation between serum cystatin C and age ($r = 0.440$, $P = 0.000$), duration ($r = 0.372$, $P = 0.042$), serum urea ($r = 0.873$, $P = 0.000$), serum creatinine ($r = 0.892$, $P = 0.000$), cholesterol ($r = 0.283$, $P = 0.005$), LDL ($r = 0.416$, $P = 0.000$) and urinary albumin ($r = 0.579$, $P = 0.000$). In contrast, cystatin C was negatively correlated with HDL ($r = -0.645$, $P = 0.000$) and urinary creatinine ($r = -0.656$, $P = 0.000$). Receiver operating characteristic (ROC) plots demonstrated that with a cutoff value of 30 mg/g, the area under the curve (AUC) was 0.719 for cystatin C and 0.624 for creatinine. With a cutoff value of 300 mg/g, the AUC was 0.907 for cystatin C and 0.882 for creatinine.

Conclusion: The results of this study suggest that cystatin C measurement in serum is a useful, practical tool for the evaluation of renal involvement in the course of diabetes, especially in patients with DNP.

Key words: *Type 2 diabetes mellitus, diabetic nephropathy, cystatin C, Gaza Strip.*

Conclusions

1. There was significant association between DM and complications. The main self-reported complications among diabetic patients were retinopathy, neuropathy and CVD. The longer the duration of diabetes, the higher the percentage of complications.
2. Family history, obesity and overweight are risk factor for DM.
3. More than half of patients had diabetes since 5 years or less.
4. The majority of patients used OHA to manage diabetes and most of patients check blood glucose regularly.
5. Serum urea and creatinine was found to be lower in diabetic patients than in their non-diabetic counterparts.
6. People who have T2DM tend to have high levels of cholesterol, triglycerides, LDL and low HDL levels.
7. Serum cystatin C and creatinine were significantly higher in macroalbuminuric patients compared to norm- or microalbuminuric patients.
8. Lipid profile including, total cholesterol, triglyceride, HDL and LDL did not affected by the presence of microalbuminuria or macroalbuminuria.
9. The serum level of cystatin C was positively correlated with age and diabetes duration whereas sex and body mass index did not affect cystatin C level.
10. Serum cystatin C had significantly higher diagnostic accuracy in distinguishing patients with nephropathy than serum creatinine.

Recommendations

1. As many diabetes complications start before the diagnosis of disease, it is recommended to screening for diabetes in adults of any age who have risk factors like obesity, dyslipidemia and first degree family history.
2. There is a need to improve the diabetic patients' and general populations' awareness of diabetic complications, risk factors and the importance of lifestyle modifications in order to

early protect themselves from the complications of this disease. As a result, they will not face future adverse consequences.

3. Screening for diabetic nephropathy must be initiated at the time of diagnosis in patients with T2DM and yearly thereafter.
4. Frequent monitoring of microalbuminuria and urinary ACR to avoid the future development of diabetic nephropathy.
5. Serum cystatin C and other biochemical parameters should be measured annually in patients with diabetes to help for detect the early stages of diabetic nephropathy patient.
6. Notification of health authorities on the results of this study, to investigate the introduction of new laboratory tests for early diagnosis of DNP.
7. Further research is required to investigate other factors affecting cystatin C across a broader range of populations and to define the use of both creatinine and cystatin C in GFR estimation.

Limitation of the study

1. The study included only outpatients diabetics registered in MOH diabetes clinics, diabetic patients treated in private sector or in UNRWA are not included, so the results may not be generalizable to the overall diabetic patients.
2. Part of the questionnaire was based on self-report, so there was the potential of recall bias.
3. Cases and controls may not free from other undiagnosed diseases.
4. Not probability sample.

Risk Factors of Cardiovascular Disease among Children with Chronic Kidney Disease in Gaza strip

by

Rafat Mohamed Muhaisen

Supervisors

Prof. Maged M. Yassin

Prof. Fadel A. Sharif

Islamic University – Gaza

Gaza-Palestine

(2009)

Abstract

Background: Chronic kidney disease (CKD) is increasingly recognized as a global public health problem. Cardiovascular disease (CVD) is a major cause of mortality in patients with mild to moderate CKD and end-stage renal disease (ESRD). There is accumulating evidence that the increase in CVD burden is present in CKD patients prior to dialysis, due to both conventional risk factors as well as those specific to kidney disease. Detection and initiation of treatment for CVD risk factors at earlier stages of CKD should be effective in reducing CVD events both before and after the onset of kidney failure.

Aim of the study: this study aimed to assess a group of traditional CVD risk factors including, hypertension, diabetes, dyslipidemia, physical inactivity, body mass index (BMI), family history of CVD, and CKD-specific CVD risk factors including, hypo albuminemia, albuminuria, anemia, Ca x P product, and inflammation (C-reactive protein), in CKD patients in Gaza strip, aged ≤ 12 years old and haven't undergone kidney replacement therapy.

Methods: Patients of the study (40 male and 20 female) were categorized into 4 stages (2, 3, 4, and 5) where stage 1 was not encountered. Stage 4 had the highest distribution, followed by stage 3, stage 5 and stage 2.

Results: There were statistically significant differences between patients and controls in the terms of height, weight, systolic blood pressure (SBP), and diastolic blood pressure (DBP), where the mean values indicated that the patients were shorter, had lower weight, higher SBP and DBP with 47% of the patients having hypertension. Frequency of physical inactivity among patients was 2-fold higher as compared to controls (50% vs. 25%). As compared to controls, patients had significantly higher means of cholesterol (163.6 ± 39.8 vs. 141.8 ± 24.2 mg/dl, $p=0.001$), triglycerides (145.5 ± 67.1 vs. 82.9 ± 39.8 mg/dl, $p=0.000$), Low density lipoprotein (LDL) (92.6 ± 31.9 vs. 72.5 ± 19 mg/dl, $p=0.000$), and they had lower means of high density lipoprotein (HDL) (41.9 ± 11.0 vs. 52.7 ± 11.7 mg/dl, $p=0.000$). As compared to controls, patients had significantly lower hemoglobin (9.8 ± 1.4 vs. 11.9 ± 0.8 g/dl, $p=0.000$), albumin (4.6 ± 0.6 vs. 4.8 ± 0.2 g/dl, $p=0.012$) and higher albumin/creatinine ratio (ACR) (1792 ± 3183 vs. 11.1 ± 6.6 mg/g, $p=0.000$). C-reactive protein (CRP) showed high occurrence among patients (40% were positive for CRP). Calcium and phosphorus evaluation showed significantly lower calcium and higher phosphorus among patients. However, Ca X P product was not statistically significant in patients compared to controls (52.4 vs. 53.4 mg²/dl², $p=0.582$).

Conclusion: This study indicates that many of the CVD risk factors are associated with different stages of CKD in children patients prior to dialysis, and that these factors are exacerbated as CKD progresses.

Key words: *Chronic kidney disease, Cardiovascular disease, Cardiovascular risk factors, Children, Gaza strip.*

Conclusion

Chronic kidney disease, with its high burden of CVD risk factors, represents an important public health concern. The identification of an individual with CKD should alert the practitioners to a large underlying burden of potentially modifiable CVD risk factors.

The study showed a significant association between a number of CVD risk factors and CKD, such as CVD risk factors include hypertension, dyslipidemia (increased total cholesterol, triglycerides, LDL, and decreased HDL), physical inactivity, anemia, albuminuria, hypoalbuminemia, and inflammation. This positive association was shown in all stages of CKD prior to dialysis.

Some CVD risk factors revealed progressive nature such as hypertension, physical inactivity, dyslipidemia, and anemia, since these factors were increased as CKD progressed.

Other studied CVD risk factors, including obesity, and family history of CVD, did not show statistically significant association with CKD in the patients of the study.

Although, Ca X P product showed no statistical significant association with CKD in the study population, the patients showed significantly lower total calcium and higher phosphorus as compared to the controls.

Other studied CVD risk factors were not present in the study population such as: Diabetes, obesity.

Recommendations

1. Patients with CKD should be classified into stages according to the NKFKDOQI and routinely tested for GFR and ACR levels to observe the progression of the disease.
2. Regular evaluation of CVD risk factors in CKD patients is needed for early diagnosis of these risk factors.
3. Aggressive management of CVD risk factors, especially modifiable risk factors such as: hypertension, anemia, dyslipidemia, and physical inactivity in early stages, is important in controlling the disease progression and may reduce the CVD events.
4. Increase attention to CVD events, even at early stages of CKD, not only by nephrologists, but more importantly by cardiologists and the general medical community.
5. Encourage the general physician for early referral of the patients with primary kidney deterioration to the nephrology centers will enable early prevention of CVD.
6. Increase awareness of CKD and its complications and methods of control and prevention, on the level of public community, is important in reducing its adverse consequences.
7. Further studies are needed to investigate other emerging cardiovascular risk factors, such as homocysteinaemia, High sensitivity C-reactive protein, lipoprotein (a), and oxidative stress. Ultrasonographic measurements such as the measurement of increased intima-media thickness (IMT) of large arteries, is important as early marker and sensitive predictor of CVD events in CKD patients.
8. Large study is needed for measurement of BMI of our children in pediatric age, since the majority of the study subjects were underweight.
9. Regular reporting and documentation on the incidence and prevalence of CKD, especially in children are needed in our community.

Impact of Hemodialysis on Nutritional Status in Patients with End-Stage Renal Disease Aged 19-59 Years at Al-Shifa Hospital, Gaza-Palestine

by

Abed Al Hameed Hassan El Belbeisi

Supervisor

Dr. Amin T. Hamed

Assoc. Professor of Pharmacology

Faculty of Pharmacy

Al-Azhar University-Gaza

Al Azhar University-Gaza

Gaza-Palestine

(2013)

Abstract

Background: Malnutrition is highly prevalent worldwide among hemodialysis patients and is one of the strongest predictors of morbidity and mortality; even though it has not been assessed among hemodialysis patients living in Gaza Strip, Palestine.

Objectives: To determine the prevalence of malnutrition among hemodialysis patients, to determine the impact of demographic socioeconomic factors on malnutrition indicators, to determine the prevalence of chronic kidney disease complications, to evaluate the diet & fluid compliance among hemodialysis patients, and to clarify the correlation between dietary intake and malnutrition among hemodialysis patients.

Methodology: To achieve this purpose, sixty patients with end stage renal disease, from both gender, aged 19-59 years on regular hemodialysis for at least six months were assessed using anthropometric indices including height & dry weight (the postdialysis body weight used as the dry weight); physical examination (blood pressure measurement); biochemical tests including (hemoglobin, serum iron, fasting blood sugar, serum albumin, total iron binding capacity, creatinine, cholesterol, phosphorous, alkaline phosphatase, parathyroid hormone, total calcium, sodium, and potassium), demographic socioeconomic & medical history questionnaire, and estimation of dietary pattern & intake using food frequency questionnaire.

Results: Approximately two thirds of hemodialysis patients showed biochemical malnutrition indicators. These include hypoalbuminemia (66.7%), low predialysis serum creatinine level (65%), low serum cholesterol (61.7%), and low BMI, where 46.7% of the patients had BMI less than the recommended BMI (23.8 kg/m²) for hemodialysis patients. There was a marked increase in the prevalence of chronic kidney disease complications (anemia 100%, hypertension 75%, high turnover bone disease 58.3%, hyperkalemia 50%, diabetes mellitus 43.3%).

On the other hand, a significant inverse proportion was found between number of visits to emergency room (ER) and number of admission days to the hospitals over a year (2012) with serum albumin, and BMI. The data suggests that the patients were at high risk of morbidity and mortality. Moreover there was a significant direct proportion between demographic socioeconomic factors (age, marital status and monthly income) and BMI. Furthermore, a significant direct

proportion was found between dietary protein, phosphorous, potassium intake and serum albumin, serum phosphorous, serum potassium respectively. The majority (78.3%) of hemodialysis patients didn't have any diet regimen and about (61.7%) of patients deviated from their fluid restrictions.

Conclusion & Recommendation: The prevalence of malnutrition and chronic kidney disease complications is high in hemodialysis patients. The nutritional status needs more attention, regular periodic nutrition assessment, and early nutritional interventions to decrease malnutrition and its consequences, which has a significant adverse impact on patients survival among Palestinian hemodialysis patients.

Key words: Hemodialysis, Nutritional Status, End Stage Renal Disease, Malnutrition, Body Mass Index.

Conclusions

Malnutrition is common among hemodialysis patients at Al-Shifa hospital Gaza, Palestine and closely related to morbidity and mortality.

1. Approximately two thirds of the patients showed a biochemical malnutrition indicators, these include:
 - a. Hypoalbuminemia (66.7%),
 - b. Low predialysis serum creatinine level (65%),
 - c. Low serum cholesterol level (61.7%),
 - d. And 46.7% of the patients had BMI less than the recommended BMI (23.8 kg/m²) for hemodialysis patients.
2. There was a marked increase in the prevalence of CKD complications among hemodialysis patients at Al-Shifa hospital Gaza, Palestine:
 - a. Anemia (100%) (30% Iron Deficiency Anemia),
 - b. Hypertension (75%),
 - c. High turnover bone disease (58.3%),
 - d. Hyperkalemia (50%),
 - e. Diabetes mellitus (43.3%).

And the presence of this co-morbidity has a significant adverse impact on patients survival.

3. There was a significant positive correlation between patients age (yrs), marital status, and monthly income (NIS) with BMI. The data suggests that demographic socioeconomic factors could contribute to a higher percentage of malnutrition.
4. There was a significant negative correlation between number of visits to ER and the number of admission days to hospitals over a year with serum albumin level, and BMI. The data suggests that the patients are at a high risk of morbidity and mortality.
5. There were a significant positive correlations between dietary protein, phosphorous, potassium intake with serum albumin level, serum phosphorous level, serum potassium level respectively. Our results showed that, hemodialysis patients need to decrease consumption of (phosphorous, potassium rich foods) and to increase dietary protein intake, to improve their nutritional status and to reduce CKD complications.
6. Gastrointestinal symptoms lead to inadequate food intake and may interfere significantly with the patients nutritional status.
7. The majority (78.3%) of hemodialysis patients didn't have any diet regimen and about (61.7%) of patients deviated from their fluid restrictions.

Recommendations

1. The nutritional status of hemodialysis patients needs more attention and regular periodic nutrition assessment and early nutritional intervention.
2. Every hemodialysis patient needs an intensive nutritional counseling based on an individualized plan of care developed before or at the time of hemodialysis therapy.
3. Education and dietary counseling should be the first step in attempting to maintain adequate energy & protein intake, and to increase diet & fluid compliance.
4. Increase dietary protein intake is recommended for hemodialysis patients, at least 50% of the dietary protein should be of high biological value.
5. Hemodialysis patients require dietary phosphorous restriction with a combination of phosphorus binders when serum phosphorous level is elevated.
6. Hemodialysis patients require aggressive dietary potassium restriction when serum potassium level is elevated.
7. Monitor of body weight and body mass index aiming to maintain high normal body mass index, especially in the first year of hemodialysis.
8. Individuals undergoing hemodialysis who are unable to meet their protein and energy requirements with food intake should receive nutrition support.
9. To the policy maker, activate the role of clinical nutritionists in the clinical setting as soon as possible.
10. Periodic assessment of nutritional status should be part of the routine care of hemodialysis patients.
11. Further clinical researches are needed to explore the impact of applying nutritional intervention (through high calories dense meal, high protein, low phosphorous and low potassium diet) on the outcome of the hemodialysis patients.
12. Further studies are needed to assess CKD complications among hemodialysis patients and its consequences.

Homocysteine levels in chronic kidney disease patients in Gaza Governorate, Gaza Strip

by

Abedullah A. Abu Nada

Supervisor

Prof. Dr. Maged M. Yassin

Professor of Human Physiology

Faculty of Medicine

The Islamic University of Gaza

Islamic University – Gaza

Gaza-Palestine

(2012)

Abstract

Background: chronic kidney disease (CKD) is one of the leading cause of death among the Palestinians. Although hyperhomocysteinemia has been strongly linked to CKD, biochemical tests are restricted to monitoring kidney function test . Therefore, introducing homocysteine test in Gaza hospitals for CKD patients may provide a clearer picture on the patient condition and help in the disease management.

Objective: To assess homocysteine status and some biochemical parameters of CKD in patients from Gaza Governorate, Gaza Strip.

Material and methods: This case-control study comprised 82 CKD patients and 82 healthy controls. Questionnaire interview was applied. Serum homocysteine, urea, creatinine, uric acid, protein profile, and electrolytes were determined . Data were analyzed using SPSS version 18.0.

Results: The mean ages of controls and cases were 44.8 ± 10.2 and 45.7 ± 13.6 years, respectively. CKD was more frequent among lower educated and unemployed individuals as well as among families with low income ($P < 0.05$). BMI of cases was significantly higher than that of controls (30.6 ± 6.8 vs. 25.6 ± 3.7 , and $P = 0.000$). Clinical data showed that hypertension, diabetes and obesity are risk factors of CKD. Among food stuff, only frequent consumption of meat was found to be a risk factor of CKD. The mean levels of homocysteine was significantly higher in cases compared to controls (27.8 ± 5.7 vs. 13.4 ± 3.7 $\mu\text{mol/l}$, $P = 0.000$). The average levels of urea, creatinine and uric acid were found to be significantly higher in cases (114.1 ± 40.3 , 4.9 ± 2.8 and 6.1 ± 1.8 mg/dl, respectively) compared to controls (26.0 ± 7.5 , 0.69 ± 0.12 and 4.3 ± 1.1 mg/dl,) with $P = 0.000$. In contrast, The mean value of Glomerular Filtration Rate (GFR) was markedly declined in cases compared to controls (19.3 ± 15.0 vs. 125.5 ± 22.7 , $p = 0.000$). There was a significant decrease in the mean level of total proteins in cases compared to controls (6.8 ± 0.6 vs. 7.1 ± 0.3 , $p = 0.021$).

Homocysteine levels were higher in low educated, unemployed, and low family income ($P = 0.000$). Homocysteine levels were also higher in hypertensive, diabetic and obese individuals as well as in individuals who ate meat frequently ($P < 0.05$). Homocysteine levels were positively correlated with BMI ($r = 0.291$, $P = 0.006$), urea ($r = 0.698$, $P = 0.000$), creatinine ($r = 0.674$, $P = 0.000$), uric acid ($r = 0.471$, $P = 0.000$), potassium ($r = 0.643$, $P = 0.000$) and phosphorus ($r = 0.467$, $P = 0.000$) and negatively

correlated with GFR ($r=-0.793$, $P=0.000$), total protein ($r=-0.255$, $P=0.016$) and calcium ($r=-0.420$, $P=0.000$).

Conclusions: Serum homocysteine level were significantly higher in CKD patients compared to controls. Homocysteine levels in CKD patients were higher in low educated and unemployed individuals as well as family with low income. Hypertensive, diabetic and obese individuals as well as individuals who ate meat frequently had also higher levels of homocysteine.

Homocysteine levels were positively correlated with BMI, urea, creatinine, uric acid, potassium and phosphorous, and negatively correlated with GFR, total protein and calcium.

Key words: *Chronic kidney disease, homocysteine, kidney function, Gaza strip.*

Conclusions

1. The study population included 82 controls (41 males and 41 females) and 82 CKD patients (cases: 41 males and 41 females). The mean ages of controls and cases were 44.8 ± 10.2 and 45.7 ± 13.6 years.
2. CKD was more prevalent among lower educated, unemployed individuals as well as among families with low income.
3. BMI of cases was significantly higher than controls.
4. Clinical data showed that hypertension, diabetes and obesity are risk factors of CKD.
5. Among food stuff, only frequent consumption of meat was found to be a risk factor of CKD.
6. The mean levels of homocysteine was significantly higher in cases compared to controls.
7. The average levels of urea, creatinine and uric acid were significantly higher in cases compared to controls.
8. GFR showed a marked decrease in cases compared to controls.
9. Total protein was significantly decreased in cases compared to controls.
10. Sodium, potassium and phosphorus were significantly increased whereas calcium was decreased in cases compared to controls.
11. Homocysteine levels were higher in low educated, unemployed individuals as well as in low income family.
12. Homocysteine levels were significantly higher in hypertension, diabetes obesity, and in individuals who ate meat frequently.
13. Homocysteine levels were positively correlated with BMI, urea, creatinine, uric acid, potassium and phosphorus, and negatively correlated with GFR, total protein and calcium.

Recommendations

1. Introducing of homocysteine as a diagnostic test for CKD patients in Gaza hospitals and clinics is highly recommended.
2. Frequent monitoring of homocysteine levels particularly in CKD, hypertensive, diabetic and obese individuals as well as individuals who eat meat frequently.
3. Launching of health education programs on obesity and diabetes mellitus as contributing factors of CKD.
4. Follow up a healthy diet in term of reducing meat intake.

Adequacy of Glycemic Control and Serum Lipid Profile in Hemodialysis of Palestinian Patients with Diabetes Mellitus

By

Issam Ahmad Murtaja

Supervisors

Dr. Amin T. Hamed

*Associate Professor of Pharmacology
College of Pharmacy
Al-Azhar University, Gaza*

Dr. Sulaiman A. El jabour

*Assistant Professor of Pharm. Chemistry
College of Pharmacy
Al-Azhar University, Gaza*

*Al Azhar University-Gaza
Gaza-Palestine
(2009)*

ABSTRACT

Background: Inadequate glycemic control and lipid abnormalities which are prevalent among diabetic patients on hemodialysis may act synergistically to place these patients at an augmented risk for morbidity and mortality of diabetic complications. At the time of starting this study (Nov 2007), diabetes mellitus was prevalent among the hemodialysis Palestinian patients in Gaza Strip by 23 %.

Objective: The purpose of this case - controlled study was to assess the glycemic control and prevalence of dyslipidemia among the diabetics who were on hemodialysis, **Material and methods:** by following them up for 9-12 months and carrying out the following measurements (every 3-4 months) glycated hemoglobin (A1C), LDL cholesterol, HDL cholesterol, total cholesterol, and triglycerides, over the time of study, from Nov 2007 to Aug 2008. To achieve this purpose, fifty diabetic patients on dialysis were selected from the four hemodialysis centers in Gaza Strip hospitals (Al-Shifa, Nasser, Al-Aqsa, & Al-Najar). Twenty five healthy individuals without any obvious disease were taken as control. High mortality among the dialysis patients was noticeable. Fifteen hemodialytic diabetic patients died during the study period. Ten of the dead patients had history of hypertension before reaching the end stage renal disease.

Results: The results of this study showed a significant elevation in glycated hemoglobin (A1C%) among the hemodialytic diabetic patients in comparison to healthy controls along the study period. Using a cutoff value A1C 6.5 % for good glycemic control, the results showed a significant proportion of patients (>40 %) with inadequate glycemic control in each of three tests carried along the study period. More than half (55.6%) of patients who underwent insulin therapy were with inadequate glycemic control. This result is indicative of insulin resistance among these patients. Dyslipidemia was characteristic in hemodialytic diabetic patients where the levels of HDL cholesterol were found to be significantly lower in all patients compared to controls 32.5 ± 8.8 vs. 42.7 ± 9.1 mg/dl; respectively (P-value <0.05). The mean LDL/HDL ratio in patients was higher and significantly different from that in controls, 3.6 ± 1.3 vs. 2.7 ± 0.8 ; respectively (P-value < 0.05).

Conclusion : Inadequate glycemic control in diabetics on hemodialysis was prevalent, insulin resistance is suggested, dyslipidemia is predominate, and further follow up of these patients is recommended.

Key word : Hemodialysis, Diabetes mellitus, Glycemic control, A1C , Dyslipidemia.

CONCLUSIONS

1. The glycated hemoglobin test carried out in our study revealed that inadequate glycemic control is prevalent among hemodialytic diabetic patients ($\approx 41\%$).
2. The study showed that the therapy used failed to treat the hyperglycemia in a significant proportion of hemodialytic diabetic patients, such result was also seen in patients who underwent insulin therapy, more than half ($\approx 56\%$) of them were with inadequate glycemic control.
3. Some patients with renal failure have used drugs that contraindicated in the case of kidney failure such as Biguanides and Sulfonylurea, and this requires re-evaluate their therapeutic regimen.
4. Our results indicate that the dyslipidemia was predominate in hemodialytic diabetic patients with a low HDL-C levels in all patients (32.5 ± 8.8 mg/dl).
5. Cardiovascular risk as imposed by lipid abnormalities is elevated in those patients in comparison to healthy persons. The LDL/HDL ratio in patients was higher than that found in controls with values of 3.6 ± 1.3 vs. 2.7 ± 0.8 ; respectively.
6. The results indicate that female hemodialytic diabetic patients in group A (with hypertension history) have been more exposed than others to risk of cardiovascular disease, due to an increase in the LDL/HDL ratio among them.
7. Hemodialytic diabetic patients with history of hypertension before kidney failure, had a higher mortality rate than those without hypertension history.
8. There is a strong need to carry out analytical tests, which assess the adequacy of glycemic control and serum lipid abnormalities, in the routine clinical follow-up of hemodialytic diabetic patients in Gaza-Strip.

RECOMMENDATIONS

1. Since inadequate glycemic control was seen even with the use of insulin therapy in different doses among patients, and it was difficult to precisely control the glycemia between dialysis sessions in diabetic patients, we strongly recommend :
 - a. Self-monitoring of blood glucose levels (SMBG) is recommended for all hemodialytic diabetic patients especially those on insulin therapy. This is needed for more accurate individual dose adjustments and to achieving glycemic goals.
 - b. Routinely perform the analytical tests (A1C or glycated serum proteins tests) that reveal the adequacy of glycemic control between the dialysis sessions, in order to manage and follow-up the hyperglycemia in hemodialytic diabetic patients.
2. Because of insulin resistance is prevalent among hemodialytic diabetic patients, we recommend to control the glycemia in these patients by nutritional management and diet control at first, and more clinical follow-up for them.

3. Assessing the cardiovascular disease risk by performing routine tests for serum lipid profile in hemodialytic diabetic patients.
4. Patients with chronic kidney diseases who suffered from hypertension accompanying to diabetes need further follow-up more than others to assess the risk of cardiovascular diseases periodically.
5. Diabetic patients with kidney failure should be treated according to the new guidelines recommendations of associations that are interested in diabetes care as ADA, AACE or European Renal Association.
6. It is very important to set up mandatory disease-history registers in hospitals for patients, to get better information on the disease and its complications.
7. Reliable information on causes of death is essential to the development of national and health policies for prevention and control of diseases .
8. Long term studies using larger number of hemodialysis patients and for longer period of time are warranted.
9. Diabetes and hypertension are playing a significant role in the initiation and progression of chronic kidney disease. So, the patients who suffer from hypertension accompanying to diabetes they are needing (more than others) to follow up their kidney function routinely.

The Role of N-Acetylcysteine or N-Acetylcysteine plus Ascorbic Acid in Prevention of Contrast-Induced Nephropathy in High-Risk Patients With Ischemic Heart Disease.

By:
Alaa S. Hillis.

Supervisors

Dr. Amin T. Hamed
Associated professor of pharmacology
College of Pharmacy
Al-Azhar University-Gaza

Dr. Mohammad H. Habib
consultant of cardiologist M.D.,PH.D
Ministry of Health

Al Azhar University-Gaza
Gaza-Palestine
(2013)

Abstract

Background Several protective therapies have been developed to prevent contrast-induced nephropathy (CIN). This study aimed to evaluate the effect of high dose of *N*-acetylcysteine (NAC) plus hydration, low dose of (NAC) plus Ascorbic acid and hydration or hydration alone on the prevention of (CIN) in high-risk patients undergoing coronary or peripheral angiography and/or intervention at European Gaza Hospital cardiac catheterization center,

Methods We prospectively enrolled 105 high risk patients who were scheduled for cardiovascular procedures and had a baseline creatinine level 0.96mg/dl, Creatinine Clearance Level 76.63ml/min, Urea plasma level 35.07 mmol/L. The patients were divided into 3 different groups and assigned 1 of 3 prophylactic regimens: Group A (n=30) (NAC) 1200mg orally before angiography and 1200-mg orally twice daily for three doses, Group B (n=30) (NAC) 600mg before angiography and 600-mg orally twice daily for three doses plus Ascorbic acid (3000mg one dose) before angiography and 2000mg two doses after angiography and hydration, Group C (n=45) hydration with (0.9% saline) started just before contrast media injection and continued for 12hrs at a rate 1.0ml/kg/min after angiography intervention, or 0.5 ml per kilogram per hour in cases of overt heart failure for 12hrs. Contrast-induced nephropathy was defined as an increase in serum creatinine level $\geq 25\%$ or 0.5 mg/dL after 48 hrs.

Results: We include that different types of risky patients with diabetes mellitus 84 (80%), heart failure 5 (4.8%), Age >70 years 22 (21%), Serum Creatinine >1.5 mg/dl 6 (5.7%), male/female were 61 (58.1%) 44 (41.9%) respectively and patients who took contrast media >300 cc 13 (12.3%), the incidence of CIN significantly lower in group A 2 (6.66%) compared with Group B 5 (16.66%) and Group C 8 (17.77%).

The differences between group A and B and between group A and C were highly significant ($P = 0.001$). In contrast, the differences between group B and C were non-statistically significant ($P=0.37$).

Conclusion: High dose of NAC (1200mg) plus hydration provides better protection against CIN than the combination therapy of NAC 600mg plus ascorbic acid plus hydration or hydration alone. Combination therapy of NAC plus hydration did not offer additional benefit over hydration alone.

Key word: *contrast induced nephropathy (CIN), N.acetylcystein (NAC), serum creatinine creatinine clearance , urea plasma level.*

Conclusions

This clinical study we concluded:-

1. High dose of NAC (1200mg) plus hydration provide significant lowering in the incidence of CIN in high risk patients undergoing angiography procedures.
2. High dose of NAC (1200mg) plus hydration caused significant decrease in the incidence of CIN in comparison with hydrations alone.
3. High dose of NAC (1200mg) plus hydration significantly decreased the incidence of CIN in comparison with combining regimen of NAC plus ascorbic acid and hydrations.
4. The effect of NAC in preventing CIN was similar in male and female patients .
5. The effect of NAC in preventing CIN was similar in diabetic and non diabetic patients .

Recommendations :-

1. Recommend to adopt high dose of NAC (1200mg) plus hydration protocol in high risky patients undergoing angiography procedure.
2. Group the patients according to the risk factors before undergoing angiography procedures.
3. Further research should be carried out on isolated risky patients.
4. Further research should be performed on the use of ascorbic acid alone in reducing CIN.
5. Further research should be done on the effect of different treatment groups on male and female patients.

Chronic Renal Failure Patients in the Gaza Strip "Study in Medical Geography"

إعداد
هالة عبد كامل مدوخ

إشراف
أ.د. نعيم سلمان محمد بارود

الجامعة الإسلامية
غزة- فلسطين
(2013)

ملخص الدراسة

تناولت الدراسة التوزيع الجغرافي لمرضى الفشل الكلوي المزمن في محافظات غزة حسب الجنس (ذكوراً وإناثاً) وحسب المحافظات وحسب موقع السكن، كما تناولت الدراسة بيان وتوضيح تطور وازدياد عدد المرضى والوفيات لمرضى الفشل الكلوي المزمن في محافظات غزة خلال الفترة (2002-2012م)، وتناولت الدراسة التعرف على الجودة الكيميائية والنوعية لمياه الشرب في آبار محافظات غزة وتقدير نسب المرضى الذين يعتمدون على مياه البلدية، المياه المفلترة، ومصادر أخرى، ومحاولة إيجاد العلاقة بين التلوث الكيميائي للمياه والإصابة بمرض الفشل الكلوي المزمن وأكثر المناطق تلوثاً بالمياه من الناحية الكيميائية وتحليل أسبابها مع الإصابة بمرض الفشل الكلوي المزمن، وتناولت الدراسة العادات والسلوكيات المتبعة لفئة المرضى الذين كانوا يعتمدون على المياه المفلترة قبل الإصابة بالمرض لطبيعة استخدامهم للمياه المفلترة، كما تناولت الدراسة المتغيرات البشرية كالخصائص الاجتماعية، والخصائص الاقتصادية، والخصائص الصحية، وتناولت علاقة التلوث الكيميائي للغذاء والإصابة بمرض الفشل الكلوي المزمن وعلاقة المركبات الكيميائية لمادة النيكوتين في دخان السجائر في الإصابة بمرض الفشل الكلوي المزمن، ودور الاحتلال الإسرائيلي في ازدياد التلوث البيئي، ومحاولة الربط بين المتغيرات الطبيعية (التلوث الكيميائي للمياه) المتغيرات البشرية والإصابة بمرض الفشل الكلوي المزمن، حيث اعتمدت الدراسة في تحديد الملوثات الكيميائية للمياه من التحليل الكيميائي للمياه من مختبر الصحة العامة بفحص آبار الشرب (الكورايدي) (النترات) (الأملح الكلية الذائبة) كمحدد لتلوث المياه الكيميائي مستخدمة عدداً من المعاملات الإحصائية المتمثلة في مربع كاي، ومعامل ارتباط سبيرمان، وذلك بهدف إظهار العلاقات الارتباطية، بالإضافة إلى ذلك تم توزيع السببان على مرضى الفشل الكلوي المزمن (420 استبانة) (تم استثناء 16 طفلاً) وذلك بهدف قياس المتغيرات الطبيعية والمتغيرات البشرية الخاصة بالمرضى، وقد أنتجت الدراسة العديد من الخرائط المحوسبة (Arc Gis) لإظهار بؤر التلوث الكيميائي للمياه واستخدام برنامج (Microsoft Excel) وبرنامج (Corel draw) وذلك استخدام الخرائط والجداول والأشكال البيانية للتوزيع الجغرافي للمتغيرات الطبيعية والبشرية للمرضى.

وقد أظهرت نتائج الدراسة وجود تلوث كيميائي للمياه في محافظات غزة، وبينت الدراسة أيضاً وجود علاقة ارتباطية بين التلوث الكيميائي للمياه والإصابة بمرض الفشل الكلوي المزمن، وأظهرت الدراسة العلاقة الارتباطية بين الخصائص الاجتماعية والاقتصادية والصحية والملوثات الكيميائية للغذاء وعادة التدخين والإصابة بمرض الفشل الكلوي المزمن، كما أظهرت نتائج الدراسة تركيز أكبر نسبة للمرضى في المعسكرات ثم أحياء ومدن محافظات غزة.

وكانت أهم التوصيات التي عرضتها الدراسة بضرورة توعية المواطنين عن أضرار الملوثات الكيميائية على صحة الإنسان وخاصة على الكلى، كذلك بتوعية المواطن بضرورة الفحص الدوري والمستمر تجنباً للإصابة بالمرض، وضرورة إتباع نظام غذائي والتقليل من تناول الأملاح والمشروبات الغازية لأنها تساهم بالإصابة بمرض الفشل الكلوي المزمن، والإقلاع عن التدخين لأن له علاقة ارتباطية بالإصابة بالمرض، تكوين جهة للفحص وإصدار شهادات بخلو الخضار والفواكه من بقايا المبيد الحشري الكيميائي واستخدام المبيدات الزراعية تتناسب كميتها مع المحاصيل الزراعية حتى لا يتم تلوث للتربة والمياه الجوفية والمأكولات الغذائية، وزيادة عدد أجهزة غسيل الكلى في أقسام غسيل الكلى ليقترّب من المعدل العالمي وهو (3) مرضى لكل جهاز غسيل، توسيع بعض أقسام مرضى الفشل الكلوي لتمكين المرضى من تلقي الخدمات الصحية بالشكل المناسب، وضرورة تبني سياسات تحافظ على الخزان الجوفي الساحلي في محافظات غزة وإنشاء شبكة صرف صحي تغطي جميع محافظات غزة، نظراً لكونه المصدر الوحيد لسد احتياجات المواطنين من المياه للأغراض المختلفة.

النتائج:

عالج هذا البحث مشكلة مرضى الفشل الكلوي المزمن في محافظات غزة، واعتمد هذا البحث على عينة مقدارها (420) مريضاً، وتم استثناء (16) طفلاً، وتم ربط ذلك مع التركيب الكيميائي للمياه الجوفية، وأكثر المناطق تلوثاً بالمياه من الناحية الكيميائية وتحليل أسبابها مع الإصابة بالمرض، وتقدير نسب المرضى الذين يعتمدون على مياه البلدية، المياه المفترة، ومصادر أخرى، وتم ربط أيضاً الأوضاع الاجتماعية والاقتصادية والصحية مع الإصابة بالمرض، والتلوث الكيميائي للغذاء والعادات الغذائية المتبعة للمرضى، وتم ربط العادات والسلوكيات المتبعة لفئة المرضى الذين كانوا يعتمدون على المياه المفترة قبل الإصابة بالمرض لطبيعة استخدامهم للمياه المفترة، وتم ربط المركبات الكيميائية لمادة النيكوتين في دخان السجائر في الإصابة بمرض الفشل الكلوي المزمن، وتم توزيع مرضى الفشل الكلوي المزمن مكانياً، وتم استخدام الاختبارات الإحصائية لإيجاد العلاقة بين المتغيرات الطبيعية والمتغيرات البشرية في انتشار مرض الفشل الكلوي المزمن.

ويمكن إجمال أهم النتائج التي توصلت إليها الدراسة في النقاط التالية:

1. اتضح من خلال الدراسة أن محافظة غزة سجل بها أعلى معدل بمرض الفشل الكلوي المزمن ونسبة (33.2%) وشكل حي الزيتون وحي الشجاعة ومعسكر الشاطئ (14.2% ، 10.4% ، 9.7%) على التوالي الأعلى بالنسبة لإجمالي حالات المحافظة، وتليها محافظة خان يونس ونسبة (20.3%) وقد مثل معسكر خانيونس النسبة الأعلى لتركيز المرضى ونسبة (20.7%) بالنسبة لإجمالي حالات المحافظة، وجاء في الترتيب الثالث محافظة الشمال بنسبة (18.6%) وشكل معسكر جباليا وبيت لاهيا النسبة الأكبر لتركيز المرضى (46.7% ، 41.3%) بالنسبة لإجمالي حالات المحافظة، ثم المحافظة الوسطى بنسبة (14.9%) وقد جاء أعلى تركيز للمرضى في معسكر دير البلح ومخيم البريج بنسبة (36.7% ، 31.7%) على التوالي بالنسبة لإجمالي حالات المحافظة، وأخيراً محافظة رفح بنسبة (13.0%) بالنسبة لإجمالي حالات الدراسة وتمثلت أعلى نسبة فيها في معسكر تل السلطان ومعسكر الشايرة بنسبة (22.6% ، 20.8%) على التوالي بالنسبة لإجمالي حالات المحافظة.

2. أظهرت الدراسة أن نسبة مرضى الفشل الكلوي المزمن الذين يعتمدون على مياه البلدية في الشرب في محافظات قطاع غزة (46.8%) قبل إصابتهم بالمرض، بينما بلغت نسبة الذين يعتمدون على مياه تحليله مباعه (45.8%)، أما المرضى الذين يعتمدون على فلتر منزلي خاص بلغت نسبتهم (4%)، في حين يعتمد (0.5%) على مياه بئر منزلي خاص، أما الذين يعتمدون على مياه بئر وكالة بلغت نسبتهم (0.2%) من عينة الدراسة.

3. وأظهرت الدراسة ارتفاع نسبة التلوث الكيميائي للمياه لعنصر (الكلورايد) في محافظات قطاع غزة لعام (2012م) عن الحد المسموح عالمياً وفلسطينياً أي أكثر من 250 ملجم/لتر، وارتفاع عنصر النترات عن الحد المسموح به أي أكثر من 50 ملجم/لتر، وارتفاع عنصر الأملاح الكلية الذائبة أي أكثر من 1000 ملجم/لتر، والتي تم إظهارها من خلال خرائط (Arc Gis) والتحليل الكيميائي للمياه حيث تعمل تلك العناصر على تعطيل عمل الكلى في حال الاعتماد عليها في الشرب، وبينت الدراسة بوجود علاقة ارتباطية من خلال اختبار معامل ارتباط بيرسون بين التلوث الكيميائي للمياه والإصابة بالمرض في محافظة غزة ومحافظة خان يونس والمحافظة الوسطى.

4. أوضحت الدراسة بوجود ارتباط وثيق بين تلوث الآبار الجوفية بالعناصر الكيميائية وخاصة الكلورايد والنترات حيث يزداد في المناطق التي تعاني من ضعف شبكات الصرف الصحي، أي التي تعتمد على الحفر الامتصاصية والتي تعاني من الطفح المستمر وخاصة في شهر الشتاء، وخصوصاً في المناطق التي ترتفع فيها عدد الإصابات بالفشل الكلوي المزمن، هذا بالإضافة أن هناك استخداماً مفرطاً لبعض المزارعين للمبيدات الحشرية خاصة في محافظة رفح ومحافظة الشمال الأمر الذي يساعد في ازدياد التلوث الكيميائي للمياه والتي لها علاقة بضرر الكلى.

5. فسرت الدراسة أن المرضى الذين كانوا يعتمدون على المياه المفترة في الشرب قبل إصابتهم بالمرض كانت مدة اعتمادهم على المياه المفترة ليست كبيرة بالدرة التي تقي المرضى من أضرار المياه البلدية، حيث بلغت نسبة المرضى الذين كانوا يعتمدون على المياه المفترة في الشرب قبل إصابتهم بالمرض، منذ أقل من 5 سنوات (63.8%)، ومنذ حوالي 5 إلى أقل من 10 سنوات بلغت نسبتهم (35.7%) أما منذ أكثر من 10 سنوات فبلغت نسبتهم (0.5%)، وأظهرت الدراسة بوجود علاقة ارتباطية بين مدة سنوات استخدام المياه المفترة والإصابة بمرض الفشل الكلوي.

6. وأظهرت الدراسة أن عدد مرات التنظيف لخزانات مياه الشرب المفترة للمرضى الذين يعتمدون على المياه المفترة كل نصف عام أقل من 3 مرات جاءت نسبتهم (47.9%) وهذا يزيد من نسبة التلوث، أما أقل من 6 مرات بلغت نسبتهم (19.4%)، أما أكثر من 6 مرات بلغت نسبتهم (5.7%)، وأظهرت الدراسة بوجود علاقة ارتباطية بين عدد مرات تنظيف خزانات الشرب كل نصف عام والإصابة بالمرض.

7. وبينت الدراسة أن المرضى الذين يستخدمون مياه بلدية في الشرب في حال نفاذ المياه المفترة من منزلهم حيث بلغت نسبتهم (44.3%) من عينة الدراسة، كما تبين أن (51.9%) يقومون بشراء ماء مفتّر بالقالون، وأن (3.8%) يستخدمون مصادر

- أخرى ، أظهرت الدراسة أن هناك علاقة بين مصدر المياه الذي تعتمد عليه الأسرة في الشرب وفي حال نفاذ المياه المفلتر من المنزل مع الإصابة بالمرض .
8. أما بالنسبة للخصائص الاجتماعية أظهرت النتائج أن أكثر من نصف أفراد عينة الدراسة هم متزوجون بنسبة (73.8%) ، في حين تراوحت أحجام أسرهم بشكل عام هم من فئات حجم الأسرة من (5 إلى أقل من 10) بنسبة (48.6%) وسجل أعلى وجود لها في المحافظة الوسطى ، أما فيما يتعلق بالحالة التعليمية أظهرت الدراسة انخفاض المستوى التعليمي لمرضى الفشل الكلوي وأن حوالي معظم المرضى (41.6%) هم من غير المتعلمين سوى تعليمًا إعداديًا أو ابتدائيًا ، أما بالنسبة لمتغير العمر جاءت أعلى نسبة للفئة العمرية من (55 سنة فأكثر) حيث بلغت نسبتهم (39.9%) ، أما بالنسبة للعلاقات الارتباطية بين الخصائص الاجتماعية والإصابة بالمرض ، بينما أظهرت الدراسة وجود علاقة ارتباطية بين الحالة الزوجية وحجم الأسرة والإصابة بالمرض ، بينما أظهرت الدراسة بوجود علاقة ارتباطية بين متغير العمر والمستوى التعليمي والإصابة بالمرض .
9. أما فيما يخص الخصائص الاقتصادية أظهرت الدراسة إجمالاً انخفاضاً في المستوى الاقتصادي (أقل من 1000 شيكل) ووصلت نسبتهم (72.5%) ، فوفقاً لتلك النتائج اتضح أن (66.8%) ليس لديهم علاقة عمل ، وأن نحو (22.3%) يعملون أعمال أخرى كعمال ومزارعين وصيادين وطلبة ، أما الموظفين الحكوميين لفئات المرضى فكانت نسبتهم (7.2%) ، أما المتقاعدين فبلغت نسبتهم (3.7%) وأظهرت الدراسة بوجود علاقة ارتباطية بين الخصائص الاقتصادية والإصابة بالمرض .
10. أما بالنسبة للخصائص الصحية أوضحت النتائج أن (79.2%) من المرضى لا يعانون من أي أمراض أخرى ، أما الذين يعانون أمراضاً أخرى ممثلة بالسكر وضغط الدم وغيرهم من الأمراض وصلت نسبتهم (20.8%) ، وأظهرت الدراسة بوجود علاقة ارتباطية بين الإصابة بمرض السكر والضغط والإصابة بمرض الفشل الكلوي ، وأوضحت النتائج أن لعامل الوراثة علاقة بالإصابة بالفشل الكلوي وخاصة من الأم أو الأب ، وأظهرت الدراسة أن هناك علاقة بين المتابعة الصحية والإصابة بالمرض حيث بلغت نسبة المرضى الذين لا يقومون بمراجعة طبية (65.1%) من إجمالي حالات الدراسة ، حيث تعتبر المراجعة الطبية من العوامل المساعدة لتقليل نسبة الأمراض أو السيطرة عليها .
11. أوضحت الدراسة أن كثيراً من المرضى كانوا لا يتبعون نظاماً غذائياً معين قبل إصابتهم بالفشل الكلوي فكانوا يتناولون جميع الأطعمة دون الاهتمام بضررها ووصلت نسبتهم (93.1%) وبينت الدراسة أن هناك علاقة ارتباطية بين التتبع الغذائي والإصابة بالمرض .
12. أوضحت الدراسة كثيراً من المرضى كانوا يتناولون الأطعمة المملحة بشتى أنواعها وبكميات كبيرة ووصلت نسبتهم (86.4%) ، بينما بلغت نسبة المرضى الذين كانوا يتناولون الأطعمة الجاهزة والأغذية المحفوظة (60%) وبينت الدراسة أن هناك علاقة ارتباطية بين تناول الأملاح وتناول الأطعمة الجاهزة والأغذية المحفوظة والإصابة بمرض الفشل الكلوي .
13. أظهرت الدراسة أن أكثر من نصف أفراد عينة الدراسة كانوا يتناولون المشروبات الغازية ووصلت نسبتهم (76.5%) من إجمالي حالات الدراسة ، وكانوا يتناولون أكثر الأنواع الكولا السوداء وبلغت نسبتهم لمشروب الكولا السوداء (78%) وكانوا يتناولونها بشكل يومي وكانت المحافظات الجنوبية أكثر المحافظات في تناول المشروبات الغازية ، وأظهرت الدراسة بوجود علاقة ارتباطية بين تناول المشروبات الغازية وخاصة الكولا السوداء والإصابة بالمرض لأن كثرة تناول المياه الغازية ، وخصوصاً الكولا السوداء ، تؤدي إلى ترسب بعض المواد العضوية داخل الكليتين وعلى الأخص في مصفاة الكلى ، مما يؤدي إلى تكوين حصوات ، إضافة إلى ترسب الإكسالات في الكلى وتغير حمضية وقلوية البول .
14. أوضحت الدراسة أن أكثر من نصف أفراد عينة الدراسة من الذكور كانوا مدخنين منذ القدم ووصلت نسبتهم (86.4%) من إجمالي حالات الدراسة ، وتم استخدام اختبار مربع كاي وتبين أن هناك علاقة ارتباطية بين التدخين والإصابة بالمرض ، لأن مادة النيكوتين في دخان السجائر تضعف قدرة الكلى على تصفية الدم من السموم ويؤدي ذلك إلى ضعف قدرة الكلى على إفراز البول ويؤدي للفشل الكلوي .
15. تبين من خلال الدراسة ارتفاع نسبة الإصابة بين الذكور عنها عند الإناث وبلغت نسبة الذكور (58.4%) أما نسبة الإناث (41.6%) وجاء أكثر تمثيل لفئة الذكور المصابين في محافظة الشمال ومحافظة رفح حيث تماثلت نسبة كل منهما في أعداد الذكور المصابين بمرض الفشل الكلوي المزمن بنسبة (66%) من إجمالي حالات الدراسة كل محافظة على حدة ، وتم استخدام اختبار مربع كاي وتبين أن هناك علاقة ارتباطية بين الجنس والإصابة بالمرض .

التوصيات :

1. في ضوء ما توصلت إليه الدراسة ومن خلال النتائج ، تم التوصل إلى مجموعة من التوصيات من أبرزها :-
1. ضرورة تبني سياسات تحافظ على الخزان الجوفي الساحلي في قطاع غزة وضرورة إنشاء شبكة صرف صحي تغطي جميع محافظات قطاع غزة ، نظراً لكونه المصدر الوحيد لسد احتياجات المواطنين من المياه للأغراض المختلفة .
2. تفعيل دور وسائل الإعلام بشتى أنواعها لتبني سياسة نشر الثقافة الصحية بين المواطنين وتحذيرهم من مضار استخدام المياه الملوثة كيميائياً على صحتهم وأهمية الفحص الطبي الدوري .
3. الإكثار من شرب الماء المفلتر في اليوم وخاصة في الفترة الصباحية حتى يتم إخراج لترين من البول يومياً أو حتى يصبح لون البول مثل الماء .
4. النظافة الدورية والمستمرة لخزانات المياه المفلترة للشرب للوقاية من التلوث المضر بالصحة .
5. الاعتدال في تناول الغذاء وعدم الإفراط في تناول الأملاح اليورات كالبروتينات الحيوانية والنباتية كاللحوم الحمراء أو المأكولات الغنية بمادة الأوكسالات والتي تكون متواجدة في المانجو والطماطم والفراولة حيث يؤدي ذلك مع التقليل من شرب السوائل إلى تعرض الأشخاص بالحصى الكلوية المساعدة بالإصابة بالفشل الكلوي .
6. تجنب الإفراط في تناول الأدوية ، ومسكنات الألم فهي تضر بالكليتين .
7. المحافظة على معدل الضغط ، والسكر في الدم عند مرضى السكر والضغط ، فهما عاملان أساسيان للإصابة بالفشل الكلوي .
8. عدم الإفراط في تناول الأطعمة الجاهزة والأغذية المحفوظة كالمعلبات بشتى أنواعها والمواد الملونة والمكسبة للطعم والرائحة .
9. تفادي المشروبات الغازية بشتى أنواعها وخاصة الكولا سوداء اللون لأنها تضر بالكليتين .
10. الإقلاع عن التدخين لأنها مضرّة بالصحة والكليتين .
11. توفير المواصلات والمعونات المادية للمرضى من قبل المؤسسات الخيرية للتسهيل عليهم من حجم المعاناة الإضافية التي يواجهونها أثناء الذهاب لتلقي العلاج .

توصيات لوزارة الزراعة :-

1. مسئولية وزارة الصحة في إرشاد وتثقيف المزارع لتجنب ما يمكن أن يدينه أمام القضاء بالتسبب في الإصابة بالفشل الكلوي وكذلك الفحص العشوائي للخضار والفواكه المعروضة في السوق وعدم التسامح في إيصال الأمر للقضاء إذا ثبت أن هناك قضايا من المبيد الحشري في الخضار والفاكهة .
2. تكوين جهة للفحص وإصدار شهادات بخلو الخضار والفواكه من بقايا المبيد الحشري الكيميائي واستخدام المبيدات الزراعية تتناسب كميتها مع المحاصيل الزراعية حتى لا يتم تلوث للتربة والمياه الجوفية والمأكولات الغذائية .

توصيات لوزارة الصحة :-

1. زيادة عدد أجهزة غسيل الكلى في أقسام غسيل الكلى ليقترّب من المعدل العالمي ، وهو (3) مرضى لكل جهاز غسيل كما تم توضيح ذلك من خلال وزارة الصحة الفلسطينية .
2. توسيع بعض أقسام مرضى الفشل الكلوي لتمكين المرضى من تلقي الخدمات الصحية بالشكل المناسب ودون المعاناة من سلبات الاكتظاظ داخل الأقسام خاصة قسم غسيل الكلى في مستشفى شهداء الأقصى بدير البلج .
3. الاهتمام بقاعدة بيانات متكاملة داخل مراكز غسيل الكلى لكل مريض وتسجيل كل ما يتعلق بالأبعاد المكانية والخصائص الاجتماعية والاقتصادية والصحية لكي تكون مصدر للباحثين لإجراء دراسة تفصيلية عن هذا المرض .

Renoprotective Effect of Aliskiren Monotherapy and Aliskiren-Pentoxifylline Combination vs Other Renin-Angiotensin System Inhibitors in Hypertensive-Diabetic Type 2 Patients with Diabetic Nephropathy (Gaza Strip)

By
Mohammed Mahmoud Taha

Supervisors

Dr: Amin T. Hamed
Associated Professor of Pharmacology
College of Pharmacy
Al-Azhar University-Gaza

Dr: Luay M. Nasser
Consultant Endocrinologist
Ph.D in Medicine

Al Azhar University-Gaza
Gaza-Palestine
(2012)

Abstract

Background: Diabetic nephropathy (DN) is one of the most serious complications of diabetes mellitus (DM) and is the leading cause of end-stage renal disease (ESRD). Excessive activity of the renin-angiotensin system (RAS) plays a vital role in initiation and progression of DN.

Objectives: of this study was to evaluate the renoprotective effect of aliskiren (direct renin inhibitor) monotherapy and combination of aliskiren plus pentoxifylline (xanthine derivative), and compare it with enalapril and valsartan (RAS inhibitors) in hypertensive-diabetic type 2 patients with DN among patients in Gaza Strip.

Materials and Methods: To achieve this purpose, eighty hypertensive-diabetic type 2 patients with microalbuminuria (20-200 µg/min or 30-300 mg/24h) were selected from UNRWA and private clinics in Gaza Strip and divided into four groups. The first group (n=20) was treated with enalapril (10-20 mg/day), the second one (n=20) was treated with valsartan (160 mg/day), the third group (n=20) was treated with aliskiren (150 mg/day), whereas the fourth one (n=20) was treated with aliskiren-pentoxifylline combination (150, 400 mg/day), then all patients were followed-up for nine months by measuring serum creatinine level and urinary albumin excretion (UAE) rate before and at 3, 6 and 9 months of treatment.

Results: The results showed a significant reduction in UAE rate among patients who used aliskiren and aliskiren-pentoxifylline combination after 6 and 9 months of treatment, where the reduction in both groups was more pronounced at 9 months of treatment. In the valsartan treated group, the reduction in UAE rate was significant after 9 months of treatment, while in the enalapril treated group, no significant reduction in UAE rate was seen throughout the study period (9 months). In addition, the results also showed a significant reduction in serum creatinine level after 6 and 9 months of aliskiren-pentoxifylline combination treatment, whereas the decrease became significant after 9 months of aliskiren treatment. On the other hand, no significant reduction in serum creatinine level among patients who used enalapril or valsartan during the study period (9 months). The study revealed that aliskiren monotherapy and aliskiren-pentoxifylline combination had more pronounced renoprotective effect than enalapril and valsartan among hypertensive-diabetic type 2 patients with DN.

Keywords: Diabetic Nephropathy, Aliskiren, Aliskiren-Pentoxifylline Combination, Valsartan, Enalapril, Urinary Albumin Excretion (UAE) Rate, Serum Creatinine Level, Renoprotective Effect.

Conclusion

Diabetic nephropathy (DN) is considered one of the major DM complications, where more than 40% of diabetic patients may develop it (Atkins, 2005; Balakumar et al., 2009). Diabetic nephropathy is a progressive kidney disease characterized by changes in renal glomerular and tubular structure and function, where microalbuminuria (20-200 µg/min or 30-300 mg/24 h) is its first clinical sign (Araki et al., 2008). Several studies have confirmed the active participation of RAS in the pathogenesis of DN (Carey & Siragy, 2003; Cravedi et al., 2005; Yoo et al., 2007). Although it is initiated by chronic hyperglycemia, many biochemical mechanisms can modulate and enhance its progression including activation of PKC pathway, activation of polyol pathway, increased accumulation of AGEs, and oxidative stress (Kikkawa et al., 2003; Jerums et al., 2008).

This study was carried out on eighty (four groups) hypertensive-diabetic type 2 patients with DN (Gaza Strip) to evaluate the renoprotective effect of aliskiren and aliskiren-pentoxifylline among those patients. Furthermore, the study was also conducted to compare the effect of aliskiren and aliskiren-pentoxifylline combination with other renin-angiotensin system inhibitors on renal functions in the same population. At the end of the study and after results analysis, we concluded the followings:

1. Both aliskiren (150 mg/day) monotherapy and aliskiren-pentoxifylline (150, 400 mg/day) combination had renoprotective effect among hypertensive-diabetic type 2 patients with DN. They significantly reduced UAE rate after 6 and 9 months of treatment and the reduction produced by both regimens after 9 months was more distinct.
2. Aliskiren (150 mg/day) monotherapy had positive effect on serum creatinine level, where it decreased significantly after 9 months of treatment.
3. Patients treated with aliskiren-pentoxifylline combination had a reduction in their serum creatinine level throughout the study period (9 months), but the significance appeared after 6 and 9 months of treatment.
4. In the valsartan (160 mg/day) treated group, there was a significant reduction in UAE rate after 9 months of treatment only.
5. In the enalapril (10-20mg/day) treated group, the results pointed to a clear increase in UAE rate at the end of the study period.
6. The study indicated that neither enalapril nor valsartan treatment had efficient effect on serum creatinine level among patients in this study because they increased it at the end of the study.

Recommendations

1. Increase awareness of diabetic patients to the dangerous complications concomitant with the uncontrolled hyperglycemia such as diabetic nephropathy which leads to ESRD.
2. Diabetic patients should comply with medications that control their blood glucose levels within normal range to delay or avoid the initiation of chronic diabetic complications.
3. Urinary albumin excretion (UAE) rate should be measured manually every year in diabetic patients to ensure the integrity of the kidneys.
4. Chronic diabetic type II patients (more than 10 years) with normal kidney functions should avoid ACEIs monotherapy and they should use a combination of ACEIs and ARBs.
5. Diabetic patients with diabetic nephropathy should be advised to use aliskiren (DRI) or aliskiren-pentoxifylline combination because it can reduce both UAE rate and serum creatinine level more significantly than other RAS inhibitors such as enalapril and valsartan.
6. Recommend to change the protocol used for treatment of hypertensive-diabetic patients in the hospitals and clinic centers in Gaza Strip.
7. Recommend further studies to assess the long-term effects of aliskiren monotherapy and aliskiren-pentoxifylline combination on renal functions in diabetic patients with diabetic nephropathy.
8. Further studies are recommended to evaluate the renoprotective effects of aliskiren monotherapy and aliskiren-pentoxifylline combination among diabetic patients with macroalbuminuria stage.

Homocysteine and hematological indices in hemodialysis patients at Al-Shifa hospital, Gaza Strip

BY

Ahmed J. AbuTaha

Supervisor

Prof. Dr. Maged M. Yassin

Professor of Physiology

Faculty of Medicine

The Islamic University of Gaza

Islamic University – Gaza

Gaza-Palestine

(2013)

Abstract

Background: Renal failure constitutes one of the ten leading causes of death in the Gaza strip with mortality rate of 2.8%. Although hyperhomocysteinemia has been strongly linked to end stage renal disease, biochemical test is restricted to monitoring kidney function. Therefore, introducing homocysteine as a biomarker of ESRD in Gaza hospitals is recommended.

Objective: To assess homocysteine and hematological indices in hemodialysis patients at Al-Shifa hospital, Gaza Strip.

Material and methods: This case-control study comprised 60 hemodialysis patients and 60 healthy controls. Questionnaire interview was applied. Serum homocysteine, urea and creatinine, white blood cell (WBC) count, red blood cell (RBC) count, hemoglobin, hematocrit, mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), platelet count, prothrombin time (PT), activated partial thromboplastin time (APTT) and international normalized ratio (INR) were determined. Data were analyzed using SPSS version 18.0.

Results: End stage renal disease was more prevalent among lower educated and unemployed individuals, families with low income as well as among individuals with family history of the disease. Clinical data showed that hypertension and diabetes are the most common self-reported disorders among the hemodialysis patients. Serum homocysteine was significantly higher in cases compared to controls (50.8 ± 9.7 vs. 13.1 ± 3.7 $\mu\text{mol/l}$, $P=0.000$).

Serum urea and creatinine were also found to be significantly higher in cases (169.6 ± 42.4 and 9.96 ± 2.40 mg/dl, respectively) compared to controls (27.4 ± 7.1 and 0.77 ± 0.14 mg/dl) with $P=0.000$. White blood cell count, MCHC and platelet count were significantly increased in cases compared to controls ($7.18 \pm 1.37 \times 10^3$ cell/ μl , 33.8 ± 1.2 mg/dl and $266.3 \pm 104.2 \times 10^9$ L vs $5.95 \pm 1.37 \times 10^3$ cell/ μl , 28.4 ± 2.0 mg/dl and $222.0 \pm 54.1 \times 10^9$ L) with $P=0.017$, $P=0.000$ and 0.045 , respectively. In contrast, RBC count, hemoglobin, hematocrit and MCH showed significant decreases in cases ($3.12 \pm 0.54 \times 10^6$ cell/ μl , 8.9 ± 1.5 gm/dl, $26.3 \pm 4.6\%$ and 28.6 ± 2.9 pg) compared to controls ($4.03 \pm 0.37 \times 10^6$ cell/ μl , 12.8 ± 1.6 gm/dl, $45.0 \pm 4.6\%$ and 31.9 ± 4.4 pg) with $P<0.01$. Prothrombin time and INR were significantly higher in cases compared to controls (16.2 ± 2.6 sec and 1.23 ± 0.17 vs 13.5 ± 0.4 sec and 0.97 ± 0.07 , $P=0.000$), whereas APTT was decreased in cases (25.3 ± 5.3 vs 32.6 ± 2.1 sec, $P=0.000$).

Homocysteine levels were higher among lower educated and unemployed individuals, families with low income as well as among individuals with family history of ESRD ($P<0.01$). Homocysteine was positively correlated with urea ($r=0.827$, $P=0.000$), creatinine ($r=0.842$, $P=0.000$), WBC count ($r=0.338$, $P=0.008$), MCHC ($r=0.789$, $P=0.000$) and platelet count ($r=0.369$, $P=0.000$) whereas negative correlations were found between homocysteine and RBC count ($r=-0.648$, $P=0.000$), hemoglobin ($r=-0.733$, $P=0.000$), hematocrit ($r=-0.836$, $P=0.000$) and MCH values ($r=-0.402$, $P=0.001$). In addition, homocysteine showed positive correlations with PT ($r=0.564$, $P=0.000$) and INR ($r=0.657$, $P=0.000$) and negative correlation with APTT ($r=-0.690$, $P=0.000$).

Conclusions: Serum homocysteine was significantly higher in hemodialysis patients compared to controls. Homocysteine was positively correlated with urea, creatinine, WBC count, MCHC, platelet count, PT and INR, and negatively correlated with RBC count, hemoglobin, hematocrit, MCH and APTT.

Keywords: *Homocysteine, hematological indices, hemodialysis, Gaza Strip.*

Conclusions

1. End stage renal disease was more prevalent among lower educated and unemployed individuals, families with low income as well as among individuals with family history of the disease.
2. Clinical data showed that hypertension and diabetes are the most common self-reported disorders among the hemodialysis patients.
3. The mean levels of homocysteine were significantly higher in hemodialysis patients compared to controls.
4. The average levels of urea and creatinine were significantly higher in cases compared to controls.
5. White blood cell count, MCHC and platelet count were significantly increased in cases compared to controls, whereas RBC count, hemoglobin, hematocrit and MCH showed a significant decrease in cases.
6. Prothrombin time and INR were significantly increased whereas APTT was decreased in cases compared to controls.
7. Homocysteine levels were higher among lower educated and unemployed individuals, families with low income as well as among individuals with family history of ESRD.
8. Homocysteine levels were positively correlated with urea, creatinine, WBC count, MCHC and platelet count, whereas negative correlations were found between homocysteine and RBC count, hemoglobin, hematocrit and MCH values.
9. Homocysteine levels showed positive correlations with PT and INR and negative correlation with APTT.

Recommendations

1. Introducing of homocysteine as a prognostic test for ESRD patients in Gaza hospitals and clinics is highly recommended.
2. Frequent monitoring of homocysteine levels particularly in hypertensive and diabetic individuals as well as individuals with family history of ESRD.
3. Launching of health education programs on risk factors contributing to ESRD particularly in hypertensive and diabetic individuals.
4. Further research on the relation of homocysteine with clotting factors and the role of homocysteine in fibrinolysis is needed.

Effect of Immunosuppressive Drugs on Kidney Function among Kidney Transplanted Patients in Gaza Strip

by

Samira M. Abu Jayyab

Supervisor

Prof. Dr. Baker M. Zabut

Islamic University – Gaza

Gaza-Palestine

(2013)

Abstract

Background: Immunosuppressive drugs (ISDs) are referred to agent that can suppress or prevent the immune response. ISDs are used to prevent rejection of a transplanted organ and to treat autoimmune diseases. A common side-effect of many ISDs is immunodeficiency, because the majority of them act non-selectively, resulting in increased susceptibility to infections and decreased cancer immuno surveillance. There are also other side-effects, such as hypertension, dyslipidemia, hyperglycemia, peptic ulcers, moon face, liver and kidney injury.

Aim: To study effect of ISDs on kidney function among a group of kidney transplanted patients in Gaza Strip.

Materials and methods: The experimental sample size was 65 patients aged over 18 from AL-shifa hospital who had gone on ISDs. The control sample was 65 healthy persons who had not gone on ISDs therapies before and matched the experimental sample in age, sex and residence. Data were obtained from questionnaire interview. About 6 ml blood were collected from each patient and random urine samples was collected from patients for the determination of microalbumin, the same samples were collected from controls.

Results: The Patients who had taken Cyclosporine e were 72.3%, whereas patients who had taken tacrolimus were 27.7%. Patients above the normal level of Cyclosporine e were 87.2%. The main self repeated complications, blood pressure (BP), diabetes mellitus (DM), peptic ulcer and fever were 63.1%, 16.9%, 9.2% and 3.1% respectively. Body Mass Index (BMI) showed no statistical significant between different groups ($X^2=0.785$, $P=0.675$), indicating that obesity is not a risk factor among the patients. Serum urea concentration was significantly increased in patients compared to controls (51.2 ± 28.0 vs. 33.0 ± 6.4 mg/dl, $p=0.000$). Similar trend was found for uric acid (5.77 ± 1.3 vs. 4.86 ± 1.3 mg/dl, $p=0.000$). Also similar trend was found for creatinine (1.59 ± 0.89 vs. 0.97 ± 0.182 mg/dl, $p=0.000$). Sodium (Na) concentration was significantly decreased in patients compared to controls (138.07 ± 4.34 vs. 140 ± 3.04 mEq/L, $p=0.000$). Similar trend was found for potassium (K) (4.07 ± 0.48 vs. 4.24 ± 0.45 mEq/L, $p=0.040$). There were no significant difference with chloride (Cl) concentration among patients and controls (95.67 ± 13.19 vs. 96.83 ± 3 mEq/L, $p=0.499$). Serum leptin was increased in patients compared to control mean (9.37 ± 11.72 vs. 7.41 ± 9.45 ng/ml, $p=0.000$). Serum microalbumin was highly increased in patient mean level compared to control mean (64.2 ± 42.7 vs. 15.16 ± 15.75 mg/dl, $p=0.000$). Glomerular filtration rate (GFR) was decreased in patient mean compared to control mean \pm SD (57.53 ± 18.90

vs. 86.36 ± 14.78 mL/min/1.73 m², $p=0.000$). The correlation test showed positive significant relation between leptin level and BMI ($R=0.458$, $p=0.000$). However no significant relation was found between leptin level and age and duration of transplantation ($R=0.024$, $p=0.785$ and $R=0.100$, $p=0.430$). The spearman test showed negative significant relation between leptin level and GFR ($R=-0.223$, $p=0.011$). Serum leptin was increased in females compared to males mean \pm SD (15.6 ± 12.6 vs. 5.18 ± 7.75 ng/ml, $p=0.000$). Comparison between effect of Cyclosporine e and tacrolimus, points out that urea, uric acid, creatinin and microalbumin concentration were significantly increased in patients who had taken Cyclosporine e compared to patients who had taken tacrolimus (57.18 , 5.99 , 1.74 and 71.49 vs. 35.66 , 5.99 , 1.72 and 44.0 mg/dl) respectively ($p=0.005$, $p=0.036$, $p=0.049$ and $p=0.017$) respectively. And the mean of GFR were significantly decreased in patients who had taken Cyclosporine e compared to patients who had taken tacrolimus ($t=-2.54$, $p=0.014$).

Key words: Immunosuppressive drugs, kidney function tests, kidney transplant, leptin, Gaza strip.

Conclusions

1. Several renal diseases and kidney transplantation appear to be gender-dependent, associated with males more than females.
2. Kidney disease affected by age, GFR declines usually beginning after 30–40 years of age, and the rate of decline may accelerate after age 50–60 years.
3. The main Self-reported complications among the patients were hypertension, diabetes mellitus, peptic ulcer and fever.
4. Levels of Cyclosporine e in most patients was above normal rang (87.2%).
5. Serum urea, uric acid and creatinine, were significantly higher in patients compared to controls. That's meant transplanted kidney affected by ISDs.
6. Electrolyte imbalances associated with ISDs.
7. Serum leptin concentration of the kidney transplantation group was significantly higher than that of the control group.
8. Microalbumin was progressively increased in patients comparing with controls.
9. GFR were progressively decreased in patients comparing with controls.
10. Leptin showed significant positive correlation with sex, BMI and GFR among the patients.
11. Patients receiving tacrolimus were at lower risk of graft loss compared with those receiving Cyclosporine e.

Recommendation

1. Monitoring level of Cyclosporine e is important to avoid toxistrip of medication.
2. Kidney function test is essential for monitoring the transplanted kidney that affected by ISDs.
3. Tacrolimus is recommended for patients with kidney transplantation. It leads to stabilize and improve of transplanted organ.
4. Leptin level is important to monitor kidney survival.
5. Further studies are needed to understand the effect of ISDs in several important nutrients.

Detection of Some Enzymes and Transferrin as Early Diagnostic Markers for Diabetic Nephropathy among Type-2 Diabetic Patients in Gaza

By
Shimaa Waleed Shubair

Supervisor:
Prof. Mohammad E. Shubair

Islamic University – Gaza
Gaza-Palestine
(2008)

Abstract

Kidney Function assessment is important in diabetic patients and early detection of diabetic nephropathy in preclinical stage of disease and will contribute to decreasing morbidity and mortality rates.

This study focused on the determination of N-acetyl- β -D-glucosaminidase (NAG) and gamma glutamyl transferase (GGT) enzymes, transferrin (TRF) and creatinine (CR) in urine of type-2 diabetic subjects and controls of healthy subjects for detection of the relationship between these markers and diabetic nephropathy in type-2 diabetic patients in Gaza.

Early morning urine samples were collected from 100 diabetic patients, their age range was from 40-60 years and some of them have hypertension and from 80 control non diabetic subjects with the same age. All the 180 subjects did not suffer from urinary tract infection, liver or renal diseases. In addition, the control subjects did not suffer hypertension, or abnormalities in carbohydrate metabolism. NAG and GGT were measured in urine samples using colorimetric assay kits while TRF was assayed using a turbidimetric immunoassay kit. CR was assayed using the alkaline picrate method.

Urinary TRF concentration, NAG and GGT activities showed significant differences between diabetic patients and control. The study showed also that these markers did not have significant difference between hypertensive and non-hypertensive diabetic patients and no significant difference between males and females of patients group. Furthermore, the study showed that 32% have shown elevated NAG excretion but GGT excretion was found elevated only in 15% of cases and TRF was found higher in 29% of patients. One female patient had abnormally elevated levels of TRF, NAG and GGT. No correlations was found between age, body mass index (BMI), smoking, duration of diabetes, systolic or diastolic pressure and these markers. This study indicates that the appearance of the NAG, GGT and TRF in urine may be useful as a noninvasive surrogate test in detecting diabetic nephropathy at an early stage.

Key words: *Diabetic nephropathy, N-acetyl- β -D-glucosaminidase, Gamma glutamyl transferase, Transferrin, Gaza.*

Conclusions

The urinary TRF concentration and NAG and GGT enzymes activity demonstrated a significant difference between diabetic patients and control. This indicates that the appearance of the NAG and GGT enzymes in urine most likely results from tubular damage and determination of these enzymes activity may be useful as a non-invasive surrogate test of incipient DN and in monitoring disease progression. Also, the urinary TRF may be useful in detecting DN at an early stage. It is preferable to perform TRF, NAG and GGT assays on early morning urine and report results on a per mg CR.

The non or low correlation among our study markers and systolic or diastolic pressure in hypertensive diabetic patients could be a result of using antihypertensive drugs. Also, there is no apparent significant difference in TRF, NAG and GGT excretions between males and females.

The slightly positive correlation which existed between the NAG and GGT means that the increase in one enzyme activity follows the increase in the other.

The low positive correlation which existed between the NAG and TRF indicates that tubular injury can be detected biochemically independent of glomerular alteration. The lack of correlation in our study markers with duration of diabetes may be explained by the nature of our population where the many of our diabetic patients were diagnosed incidentally or diagnosed only after many years of symptoms onset.

The study shows that 32% have shown elevated NAG excretion but GGT excretion was elevated only in 15% of cases and TRF was found higher in 29% of patients. One female patient had abnormally elevated levels of TRF ratio, NAG ratio and GGT ratio.

Recommendations

1. Patients with type-2 diabetes particularly; patients with high risk for DN should be instructed to measure urinary TRF ratio, NAG ratio and GGT ratio regularly for early detection of DN.
2. Long-term studies are needed to clarify whether tubular markers (NAG and GGT) and glomerular marker (TRF) precede the development of MAU.
3. Further studies are needed to investigate the other biochemical markers that help in early diagnosis of DN.
4. It is important to increase the knowledge and awareness of diabetes patients in order to early-protect themselves from the complications of this disease. As a result, they will not face future adverse consequences.
5. Notification of health authorities about the results of this study, to investigate the introduction of new laboratory tests for early diagnosis of DN.
6. Adoption of non-invasive laboratory tests for the comfort of patients.
7. It is important to develop statistical system at the MOH and make annually report contains statistical information about diabetes mellitus and other diseases in Palestine.
8. The field of early diagnosis for DN and diabetic complications in general deserve more studies since it is a very important subject, but unfortunately they are few in Palestine.

قلق المستقبل لدى مرضى الفشل الكلوي وعلاقته ببعض المتغيرات

إعداد الطالب
غالب رضوان ذياب مقداد

إشراف الدكتور
عاطف عثمان الأغا

الجامعة الإسلامية
غزة- فلسطين
(2015)

ملخص الدراسة باللغة العربية

هدفت دراسة الباحث الحالي للتعرف إلى مستوى قلق المستقبل لدى مرضى الفشل الكلوي المزمن في ضوء بعض المتغيرات، حيث تم تطبيق أدوات الدراسة التالية (اختبار قلق المستقبل – اختبار المساندة الاجتماعية – اختبار الصبر – اختبار التذكر)، وهي من إعداد الباحث، وقد تكونت عينة الدراسة من عينة عشوائية قوامها (144) مريضاً، و استخدام الباحث المنهج الوصفي التحليلي.

وقد بينت نتائج الدراسة ما يلي:

1. أن مستوى الشعور بقلق المستقبل لدى مرضى الفشل الكلوي المزمن كان مرتفعاً (73.0 %) ومستوى المساندة الاجتماعية التي يتلقاها المرضى أيضاً كانت مرتفعة (82.2 %)، حيث احتل بعد ، المساندة الأسرية المرتبة الأولى (90.4 %)، يليه في الترتيب بُعد الطاقم الطبي (82.2 %) ، والأخير بُعد الأصدقاء (63.8 %) ، كما أن مستوى الصبر لديهم كان مرتفعاً جداً (96.2 %) و التذكر كان بدرجة متوسطة (55.9 %).
2. عدم وجود علاقة ارتباطية ذات دلالة إحصائية بين قلق المستقبل وبين المساندة الاجتماعية وأبعادها (الأسرة – الأصدقاء – الطاقم الطبي) لدى مرضى الفشل الكلوي، وعدم وجود علاقة ارتباطية ذات دلالة إحصائية بين قلق المستقبل وبين الصبر لدى هذه الفئة ، وقد تبين وجود علاقة طردية موجبة ذات دلالة إحصائية بين قلق المستقبل وبين التذكر.
3. عدم وجود فروق جوهرية ذات دلالة إحصائية في درجات قلق المستقبل والمساندة الاجتماعية والصبر و التذكر لدى مرضى الفشل الكلوي يعزى (للنوع - للحالة الاجتماعية - للحالة الوظيفية - العمر -مدة المرض).
4. وجود فروق جوهرية ذات دلالة إحصائية في درجة الشعور بقلق المستقبل لدى المرضى يعزى لعدد مرات الغسيل الكلوي (مرتان – ثلاث مرات)، والفروق كانت لصالح الذين يغسلون ثلاث مرات في الأسبوع. وقد تم تفسير هذه النتائج في ضوء الإطار النظري حول متغيرات الدراسة والثقافة الفلسطينية بأبعادها المختلفة، ثم الثقافة الصحية للمؤسسات الصحية العاملة، وقد أوصى الباحث بمجموعة من التوصيات والمقترحات.

الصعوبات التي واجهت الباحث:

1. رفض بعض المرضى التجاوب مع الباحث في تطبيق أدوات الدراسة.
2. عدم توفر عينة الدراسة الكلية في وقت واحد ، فحضورهم للمستشفى ضمن أوقات حددت مسبقاً من قبل الطاقم الطبي لتوزيع الأحمال على أجهزة الغسيل الكلوي.
3. تم تطبيق أدوات الدراسة بصورة فردية لعدد كبير من أفراد العينة نظراً لصعوبة التطبيق الجماعي.
4. الانقطاع المتكرر والدائم للكهرباء.
5. الالتزامات المالية على الباحث.
6. صعوبة الوصول للمصادر البحثية بصورة مباشرة أو سهلة.
7. الجهد الكبير في التوفيق بين الدراسة والعمل وبين الالتزامات الأسرية.

التوصيات:

1. تعزيز أقسام الكلية بالمستشفيات بمختصين في العلاج النفسي والاجتماعي والصحة النفسية، للتعامل مع مرضى الفشل الكلوي المزمن.
2. بناء وحدات إرشاد نفسي داخل المستشفيات لإمداد الأقسام بالمرشدين.
3. تدريب الطاقم الطبي المعالج على آلية التعامل والاهتمام بالجوانب النفسية لهؤلاء المرضى.
4. إعداد برامج ترفيهية دورية للتخفيف من معاناتهم.
5. اعتماد برنامج تفريغ انفعالي للمرضى.
6. تعزيز دور الجمعيات الأهلية في تلبية احتياجات هذه الفئة.
7. تخصيص مبلغ مالي بصورة شهرية من الحكومة يقدم دعم ومساندة لهذه الفئة.
8. تخصيص لجنة من الطاقم الطبي والنفسي لمتابعة أحوال المرضى خارج المستشفى.
9. إقامة الندوات لتوعية عائلات المرضى بطبيعة الحالة النفسية للمرضى وكيفية التعامل معه.
10. إنشاء جمعيات تحتضن هذه الفئة، تشمل على برنامج استيعاب للمرضى وتقديم الاحتياجات اللازمة.
11. عقد محاضرات توعية عبر وسائل الإعلام المرئية - المسموعة، الصحف أو المساجد لتبصير الناس حول الآليات المناسبة لتفادي الإصابة بهذا المرض الخطير.

البحوث المقترحة:

1. دراسة أثر برنامج إرشادي ديني على جودة الحياة لدى مرضى الفشل الكلوي المزمن.
2. دراسة أثر برنامج إرشادي على جودة الحياة لدى أهالي مرضى الفشل الكلوي المزمن.
3. دراسة العلاقة بين المساندة الاجتماعية وتنمية الذات لدى مرضى الفشل الكلوي المزمن.
4. إعداد برنامج لتحسين الحالة الانفعالية والمعرفية لدى مرضى الفشل الكلوي المزمن.
5. إعداد دراسة يوضح فيها تأثير كل من الصلاة وقراءة القرآن على الصحة النفسية للمرضى الخاضعين للعلاج الغسيل الكلوي.