RECOMMENDATIONS

1. Studies on chronic kidney disease (CKD) in children should be carried out periodically in the future to help planning for early detection and better management.
2. Future studies should include CKD stage I.
3. More effort should be exerted to comply with the K/DOQI guidelines for initial and periodic investigations and treatment of childhood CKD.
4. More attention should be paid to completion of the medical records of the patients.
5. To plan for increasing the awareness of pediatricians and general practitioners about the early manifestations of CKD.
6. To convince the parents of the importance of regular follow-up for retarding the progression of CKD.
7. Screening for congenital anomalies of the kidney and urinary tract should be considered in the future.

SUMMARY

The term chronic kidney disease (CKD) refers to a condition of irreversible kidney damage that usually progresses to end-stage renal disease, a life-threatening condition without proper renal replacement therapy.

The aim of this work was to analyze the demographic, clinical, and laboratory data of children with CKD stages II-IV admitted to the Alexandria University Children's Hospital during ten years (2002-2011).

The data were collected from the files of 65 patients, tabulated and statistically analyzed. Stages of CKD were defined according to the K/DOQI guidelines and based on the estimated glomerular filtration rate using Schwartz formula. To our knowledge, this study is the first of its kind in Egypt.

The following results were obtained:

1. The age of the children ranged between 3 months and 14 years, with a mean of 5.7±3.9 yeas.
2. The male: female ratio was 2.25:1.
3. The majority of the cases were from Beheira and Alexandria governorates (50.7% and 46.2% respectively).
4. At presentation, 12.3% of the patients were in stage II, 46.2% in stage III and 41.5% in stage IV CKD.
5. The number of the patients in the second 5 years of the study (2007-2011) was more than double that in the first 5 years (2002-2006).
6. The causes of CKD were: congenital anomalies of the kidney and urinary tract (47.7%), glomerulopathies (13.8%), hereditary nephropathies (12.3%), other renal/urologic diseases (12.3%), multisystemic diseases (7.7%) and unknown (6.2%).
7. Short stature and underweight were found in 36.9% and 18.5% of the patients, respectively.
8. Pallor (67.7%), fever (33.8%), edema (27.7%) and hypertension (21.5%) were the most frequent clinical manifestations at presentation.
9. Proteinuria (40%), pyuria (26.2%) and hematuria (15.4%) were the most frequent urine findings.
10. Anemia was found in 70.8% of the patients, metabolic acidosis in 33.8%, hypocalcemia in 33.8%, hyperphosphatemia in 18.5%, elevated serum alkaline phosphatase in 18.5%, hyperkalemia in 10.8% and hypercholesterolemia and

hypertriglyceridemia in 12.3% of the patients. Hypokalemia was found in one case, and none of the cases had hyponatremia or hypernatremia.

11. Renal biopsy was done in 23% of the patients, 60% of these had idiopathic glomerular diseases.

12. Ultrasonography for the urinary tract was done in all the cases, voiding cystourethrogram was done in 61.5%, renal scintigraphy in 21.5%, and CT scan of the abdomen and pelvis in 6% of the cases.

13. Acute peritoneal dialysis was done to 36.9% of the cases on presentation.

14. Alfacalcidol and calcium carbonate were given to about 2/3 of the patients, sodium bicarbonate to 1/3, other vitamins and iron to less than half, erythropoietin to less than 1/3 (31%) of the cases, antihypertensive drugs to 1/5 of the cases, antibiotics to 1/3, steroids and cyclophosphamide to a minority of the cases, and surgery was done to about 1/5 (21.5%) of the cases. None of the cases received growth hormone.

15. Among stage IV patients, 18.5% did not receive calcium carbonate, 22.2% did not receive alfacalcidol, and 48.1% did not receive sodium bicarbonate and 63% did not receive erythropoietin.

16. The duration of follow-up ranged between 4 months and 10 years with a mean of 3.2±2.5 years.

17. Follow-up was irregular in 47.7% of the cases.

18. More than half (55.4%) of the patients showed deterioration of kidney function during follow-up.

From the aforementioned results, it was concluded that:

1. There are deficiencies in the clinical and work-up data in some of the files.

2. Some important investigations were not done e.g., urine culture and colony count (in some of the patients), echocardiography (in most of the patients) and skeletal X-rays (in all of the patients).

3. The onset of CKD was in the first 5 years of life in the majority of the cases.

4. Congenital anomalies of the kidney and urinary tract were the commonest cause of CKD.

5. There was delay in the diagnosis of CKD.

6. Anemia, proteinuria, growth retardation, metabolic acidosis and hypocalcemia were the most common findings at presentation.

7. Treatment given to the patients was frequently incomplete, compared to the international (K/DOQI) guidelines.
8. Follow-up was irregular in nearly half of the patients.
9. CKD progressed in the majority of the patients followed-up.

Consequently, it was recommended that:

1. Studies on chronic kidney disease (CKD) in children should be carried out periodically in the future to help planning for early detection and better management.
2. Future studies should include CKD stage I.
3. More effort should be exerted to comply with the K/DOQI guidelines for initial and periodic investigations and treatment of childhood CKD.
4. More attention should be paid to completion of the medical records of the patients.
5. To plan for increasing the awareness of pediatricians and general practitioners about the early manifestations of CKD.
6. To convince the parents of the importance of regular follow-up for retarding the progression of CKD.
7. Screening for congenital anomalies of the kidney and urinary tract should be considered in the future.

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الملخص العربى

يشير مصطلح "مرض الكلى المزمن" إلى حالة تلف دائم بالكلى تتقدم عادة إلى المرحلة النهائية لمرض الكلى وهى مرحلة تهدد الحياة وتتطلب علاجاً تعويضياً للكلى.

وقد كان الهدف من هذه الرسالة هو تحليل البيانات الديموجرافية والسريرية والمختبرية للأطفال المصابين بمرض الكلى المزمن (المراحل ٢-٤) الذين ادخلوا مستشفى الأطفال الجامعى بالاسكندرية خلال عشرة سنوات (٢٠٠٢-٢٠١١). وقد تم جمع البيانات من ملفات ٦٥ مريضاً وتم جدولتها وتحليلها احصائياً . وتم تحديد مراحل مرض الكلى المزمن تبعاً للأدلة الإرشادية لمبادرة جودة نتائج مرض الكلى(K/DOQI) ، وبناء على تقدير معدل الترشيح الكبيبى باستخدام معادلة شوارتز . وتعد هذه الدراسة الأولى من نوعها في مصر.

وقد أمكن الحصول على النتائج التالية :

١. تراوح عمر الأطفال المرضى بين ٤ شهـور ، ١٤ سنة ، بمتـوسط قـدره ٥,٧ $\pm$ ٣,٩ سنة.

٢. كانت نسبة الذكور إلى الاناث = ٢,٢٥ : ١ .

٣. كان أغلب المرضى من محافظات البحيرة والاسكندرية (٥٠,٧% ، ٤٦,٢% على التوالى).

٤. عند تشخيص المرض كان ١٢,٣% من المرضى في المرحلة (٢) و٤٦,٢% في المرحلة (٣) و ٤١,٥% في المرحلة (٤) .

٥. كان عدد المرضى في السنوات الخمس الثانية من الدراسة (٢٠٠٧-٢٠١١) أكثر من ضعف عددهم في السنوات الخمس الأولى منها (٢٠٠٢-٢٠٠٦).

٦. كانت أسباب مرض الكلى المزمن كالآتى : الشذوذات الولادية للكلى والمسالك البولية (٤٧,٧%) و أمراض الكبيبات (١٣,٨%) و أمراض الكلى الوراثية (١٢,٣%) و أمراض الكلى والمسالك البولية الأخرى (١٢,٣%) و الأمراض متعددة الأجهزة (٧,٧%) و أسباب غير معلومة (٦,٢%) .

٧. وجد أن ٣٦,٩% من المرضى قصار القامة و١٨,٥% منهم ناقصى الوزن.

٨. كانت اكثر المظاهر السريرية شيوعاً عند التشخيص هى : الشحوب (٦٧,٧%) و الحمى (٣٣,٨%) و الوذن (الايديما) (٢٧,٧%) و ارتفاع ضغط الدم (٢١,٥%) .

٩. كانت أكثر النتائج البولية شيوعاً هى البيلة البروتينية (٤٠%) والبيلة القيحية (٢٦,٢%) والبيلة الدموية (١٥,٤%) .

١٠. كانت نسبة فقر الدم بين الأطفال المرضى ٧٠,٨% والحماض الأيضى ٣٣,٨% ونقص الكلسمية ٣٣,٨% وفرط الفوسفاتمية ١٨,٥% وارتفاع الفوسفاتاز القلوى في المصل ١٨,٥% وفرط البوتاسمية ١٠,٨% وفرط الكولسترولمية ١٢,٣% وفرط ثلاثى الجلسريدمية ١٢,٣% . ولوحظ نقص البوتاسمية في حالة واحدة ، ولم يلاحظ نقص أو فرط الصوديمية في أى من الحالات.

١١. أجريت خزعة كلوية في ٢٣% من المرضى ووجد في ٦٠% منها أمراض كبيبة غامضة (أولية) .

١٢. أجرى فحص للكلى والمسالك البولية بالموجات فوق الصوتية لجميع الحالات، وفحص شعاعى افراغى للمثانة والاحليل في ٦١,٥% من الحالات و ومسح ذرى للكلى في ٢١,٥% من الحالات وفحص بالأشعة المقطعية للبطن والحوض في ٦% من الحالات.

١٣. أجرى ديال صفاقى (بريتونى) حاد فور التشخيص في ٣٦,٩% من الحالات.

١٤. أعطى الألفاكالسيدول وكربونات الكلسيوم لثلثى المرضى وبيكربونات الصوديوم لثلث المرض والفيتامينات الأخرى والحديد لأقل من نصف المرض والارثيروبويتين لأقل من ثلث المرض (٣١%) والعقاقير المخفضة

لضغط الدم لخمس المرضى والمضادات الحيوية لثلث المرضى والستروبدات والسيكلوفوسفاميد لقلة من المرضى ، وأجريت جراحات لخمس المرضى تقريباً (٢١,٥%) ولم يعطى هرمون النمو لأى من المرضى.

١٥. بين مرضى المرحلة (٤) لم يعطى كربونات الكلسيوم في ١٨,٥% من الحالات ولم يعطى الألفاكالسيدول في ٢٢,٢% من الحالات ولم يعطى بيكربونات الصوديوم في ٤٨,١ % من الحالات ولم يعطى الاريثروبويتين في ٦٣% من الحالات.

١٦. تراوحت مدة المتابعة بين ٤ شهور و١٠ سنوات بمتوسط ٣,٢ $\pm$ ٢,٥ سنة .

١٧. كانت متابعة المرضى غير منتظمة في ٤٧,٧% من الحالات .

١٨. حدث تدهور في وظيفة الكلى – أثناء المتابعة – في ٥٥,٤% من الحالات.

ومن هذه النتائج أمكن استنتاج ما يلى :

١. وجد نقص في البيانات السريرية وبيانات الاستقصاء (الفحوص) في ملفات بعض المرضى.

٢. لم تجرى بعض الفحوص الهامة في بعض المرضى (مثل مزرعة البول وعد الميكروبات) أو في كل المرضى (مثل اشعة العظام وفحص القلب بالموجات فوق الصوتية) .

٣. بدأ مرض الكلى المزمن في معظم المرضى في الخمس سنوات الأولى من العمر.

٤. كانت الشذوذات الولادية للكلى والمسالك البولية هى أكثر أسباب مرض الكلى المزمن.

٥. كان هناك تأخير في تشخيص مرض الكلى المزمن في الأطفال.

٦. كانت أكثر النتائج شيوعا بين الأطفال المصابين بمرض الكلى المزمن هى فقر الدم والبيلة البروتينية و قصر القامة والحماض الأيضى ونقص الكلسمية.

٧. كان العلاج الذى تلقاه المرضى غير كامل في مرات كثيرة وذلك بالمقارنة بالأدلة العلاجية الإرشادية الدولية.

٨. كانت المتابعة غير منتظمة فيما يقرب من نصف المرضى.

٩. إزدادت وظيفة الكلى تدهوراً في غالبية المرضى أثناء المتابعة .

وبالتالى يمكن التوصية بما يلى :-

١. يجب أن تجرى دراسات دورية في المستقبل على الأطفال مرضى الكلى المزمن ، لتساعد في التخطيط من أجل تشخيص مبكر وعلاج أفضل للمرض.

٢. يجب أن تشمل الدراسات المستقبلية المرحلة (١) من مرض الكلى المزمن.

٣. يجب بذل مزيد من الجهد للالتزام بالأدلة الإرشادية الدولية في استقصاء وعلاج مرض الكلى المزمن في الأطفال.

٤. يجب توجيه مزيد من الإهتمام لإستكمال الملفات الطبية للمرضى.

٥. يجب التخطيط لزيادة وعى أطباء الأطفال وأطباء الممارسة العامة بالمظاهر المبكرة لمرض الكلى المزمن.

٦. يجب إقناع آباء الأطفال المرضى بأهمية الإنتظام في المتابعة الدورية أطفالهم للحد من تقدم المرض.

٧. يجب التفكير مستقبلاً في إجراء مسح شامل للشذوذات الولادية للكلى والمسالك البولية.

دراسة الأطفال المصابين بمرض الكلى المزمن (المراحل ٢-٤) الذين أدخلوا مستشفى الأطفال الجامعي بالإسكندرية خلال عشرة سنوات

رسالة علمية

مقدمة لكلية الطب – جامعة الإسكندرية
إيفاءاً جزئياً لشروط للحصول على درجة

الماجستير فى طب الأطفال

مقدمة من

نرفين بهنسي علي قرقورة

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الماجستير فى طب الأطفال

لجنة المناقشة والحكم على الرسالة	**موافقون**
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