CAUSES OF CHRONIC RENAL FAILURE IN AN IRAQI GENERAL HOSPITAL

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Abstract

Background: Causes of chronic renal failure may vary in different parts of the world and in the same place at different times. Knowing the causes is important in planning prevention and treatment.

Objective: Is to find the causes of chronic renal failure in Al-Kadhimiya Teaching Hospital (Baghdad), which may serve as a representative of other major general hospitals in the country.

Patients & Methods: We studied 145 patients (98 males and 47 females). Their ages ranged from 1 to 80 years. The cause of renal failure in each patient was defined according to preset criteria. When the cause could not be identified in spite of satisfactory clinical examination and investigations it was labeled unknown.

Results: The cause was unknown in 27.5% of patients. Known causes included: obstructive nephropathy (17.1%), diabetes mellitus (16.5%), primary hypertension (15.1%) and reflux nephropathy (13.1%). A definite diagnosis of glomerulonephritis could be ascertained in 6 patients only.

Conclusion: The cause of chronic renal failure could not be identified in a significant proportion of patients many of whom may have been suffering from undiagnosed chronic glomerulonephritis. Among identifiable causes urinary tract obstruction, diabetes mellitus, primary hypertension and reflux nephropathy (chronic pyelonephritis) were the leading causes.

Key words: Renal failure, glomerulonephritis, diabetes, hypertension.

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Introduction

Chronic renal failure leading ultimately to end stage renal disease (ESRD) is a major health problem resulting in increased mortality, decreased quality of life of people affected and high costs from renal replacement therapy. Some nephrologists believe that we are in the midst of an epidemic of ESRD[1]. The incidence of ESRD has been increasing relentlessly at an annual rate of about 6-8% in most European countries[2].

In the Middle East a survey based on retrospective data reported an annual incidence for ESRD of 90-110 per million populations[3].

There is no foreseeable end to the rapidly rising rates of ESRD due to aging of the population, and the positive association of age with two major renal disease risk factors, diabetes mellitus and hypertension[1].

The list of causes of chronic renal failure have changed overtime, partly due to changing incidence of some diseases, changing age of populations and changing diagnostic criteria of some renal diseases. Two decades ago[4] glomerulonephritis and pyelonephritis were the commonest causes of chronic renal failure, while in recent years diabetic and hypertensive renal disease have increased steadily so that they account now for more than 40% of all new cases in some places[5]. A report from this country two decades ago stated glomerulonephritis and pyelonephritis as the most common causes of chronic renal failure[4]. Knowing the causes is important in prevention and treatment of chronic renal failure.

The aim of the Study was to identify the causes of chronic renal failure and their proportions in the university hospital which is one of the major general hospitals in the country and may therefore serve as an example of other hospitals.

Patients & Methods

We performed the study in Al-Kadhimiya Teaching Hospital (Baghdad) during the period January to June 2002. One hundred forty five patients with chronic renal failure were included in the study (98 males, 47 females, age range 10-85 years). They included 100 patients treated in the medical department during the period of

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study plus reviewing the notes of 45 patients treated in the department in the preceding few months.

Forty patients were on regular dialysis, seventy patients had one or more acute dialyses and the rest were treated conservatively. Ten patients were excluded from the study because they did not complete their investigations.

Diagnosis of the causative disease was made according to the criteria cited below. When a diagnosis could not be made with confidence in spite of full clinical examination and all necessary investigations the cause was labeled as unknown. Renal biopsy was performed in 4 patients only.

Diagnostic criteria:

Chronic glomerular disease: Patients having a definite history of nephrotic syndrome, or having a renal biopsy showing glomerulonephritis were labeled as chronic glomerular disease.

Reflux nephropathy (Chronic pyelonephritis): Sonographic or radiocontrast studies demonstrating kidneys with irregular outlines, deformed pelvicalyceal system and significantly different in size were considered the main criteria for this diagnosis[6]. History of recurrent urinary tract infection since early life and urinalysis showing pus cells in excess of red cells or granular casts were considered supportive evidence but not diagnostic by themselves.

Obstructive nephropathy: Is classified in our study into stone related & non-stone related obstructive nephropathy.

Diagnosis of stone-related obstructive nephropathy depended on the presence of stones and signs of obstruction documented by imaging investigations or a history of stones treated surgically with enough anatomical disruption of the urinary tract to produce renal failure later.

Non-stone related obstructive nephropathy included patients with obstructive nephropathy secondary to benign prostatic hypertrophy, prostatic or bladder tumors and congenital anomalies of the urinary tract.

Hypertensive nephropathy: Points supporting a diagnosis of primary hypertension leading to renal failure were: an onset of hypertension between 25-50 years of age, a family history of hypertension, absence of a history suggestive of renal disease before the discovery of hypertension, and an interval of several years between the discovery of hypertension and the beginning of renal failure.

Analgesic nephropathy: The main criterion for this diagnosis was a long history of consuming analgesics supported by sonographic evidence of structural changes in the kidneys, pyuria and the absence of another cause for renal failure.

Polycystic kidney disease: Diagnosis depended on the usual finding of multiple cysts on sonographic examination and the presence of family history of the disease.

Results

The figure shows the distribution of the different causes of chronic renal failure.

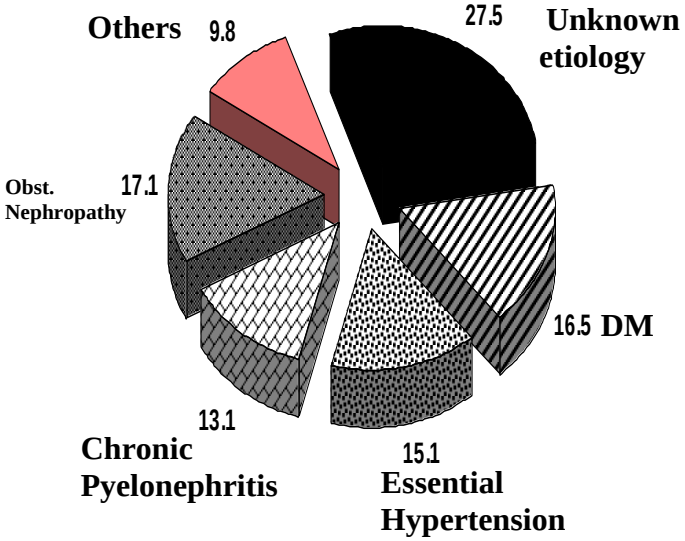

Figure: Causes of chronic renal failure their Percentages

The cause was unknown in 40 patients (27.5%), 30 (75%) males and 10 (25%) females.

Obstructive nephropathy was the commonest identifiable cause of chronic renal failure encountered in 25 patients (17.2%). The causes of obstruction were: urinary stones in 20 patients (80%) 12 males and 8 females, benign prostatic hypertrophy in 3 (12%) and bladder tumors in 2 (8%).

Diabetes mellitus (DM) was the second commonest cause encountered in 24 patients (16.5%). Sixteen of them (11 males and 5 females) suffered from type II and 8 (4 males and 4 females) from type I**.**

Essential hypertension was the cause in 22 patients (15.1%), 16 males and 6 females.

Nineteen patients (13%), 14 males and 5 females, fulfilled the criteria for the diagnosis of **reflux nephropathy (chronic pyelonephritis)**.

Only 6 patients, 4 males and 2 females, had a definite diagnosis of chronic glomerulonephritis based either on renal biopsy, or a definite history of nephrotic syndrome. Six patients, 3 males and 3 females were suffering from adult polycystic kidney disease. Three patients, 1 male and 2 female, had analgesic nephropathy.

Discusssion

Obstructive nephropathy was the commonest identifiable cause in this hospital. This may not accurately reflect the picture in the general population but it highlights the high prevalence of this condition in the country because this hospital is a large general hospital and it is probable that most other hospitals have a somewhat similar though not necessarily identical experience. This finding is important because obstructive nephropathy is a treatable condition when dealt with before the occurrence of extensive damage to the kidneys. In 80% of cases the obstruction was caused by stones, which stresses the importance of dealing with stones early and properly. Obstructive nephropathy was also one of the leading causes of chronic renal failure in another report from this country 2 decades ago[4]. Similarly urolithiasis related ESRD was high in Saudi Arabia (14.3%)[3] which was attributed to the high incidence of schistosomiasis in that country. These figures contrast with reports from western countries that show urolithiasis related ESRD to be rare (3.6-8%)[7]. This may reflect a lower incidence of renal stones or earlier and better management.

Most of the patients with urolithiasis related ESRD were males, in contrast to some recent reports suggesting that the female sex is a risk factor for urolithiasis related ESRD[7]. Most urinary stones in this country, like elsewhere, are calcium stones[8] which are thought to be more likely to produce ESRD than other types of stones[7].

Stones can damage the kidney by obstruction and infection. Since both elements usually coexist and it is not possible to separate them we included all patients with stone related chronic renal failure under the term obstructive nephropathy and did not use the term stone related chronic pyelonephritis.

Diabetes Mellitus was the second most common identifiable cause of chronic renal failure with type II accounting for two thirds of the cases. DM type II is the commonest cause of ESRD in USA[1]. This seems to reflect an increased incidence of type II DM allover the world and improved life span of diabetics making them more susceptible to long term complications of DM.

Essential hypertension was the third common cause of chronic renal failure encountered in 15.1% with a higher incidence in males. Control of hypertension remains the most important strategy to halt the progression of renal failure[7].

Reflux Nephropathy (chronic non-obstructive atrophic pyelonephritis) was a common cause of chronic renal failure in our patients (13.1%) with a higher incidence in males. This result is different from a previous report in this country which showed a higher incidence (22%) of chronic pyelonephritis[4]. This probably reflects a difference in diagnostic criteria.

In Yugoslavia reflux nephropathy forms a large percentage (43%) of young patients on haemodialysis[9]. In Middle East countries the incidence of reflux nephropathy is about the same as ours. In Saudi Arabia it accounts for 8.9% of cases[3]. In Pakistan it accounts for 11% of cases[10]. Reports of the European Dialysis and Transplant Association (EDTA) and the Austrian and New Zealand dialysis and transplant registry (ANZDATA) show that 10% of patients entering dialysis/transplant programs have reflux nephropathy[11] which is comparable to our result. The reported incidence is less in USA[12]. The preponderance of males is different from some other reports which show a slight preponderance of females[9].

Chronic glomerulonephritis was the cause in only 4.1% of our patients. This low incidence is almost certainly the result of the strict criteria used for diagnosis. It is very probable that many of the patients in the unknown group were cases of undiagnosed glomerulonephritis. There are wide variations in the incidence of glomerulonephritis in different countries. It accounts for 39.8% of cases in Japan and 34% of cases in Australia while it forms only 11% in USA and 12.4% in England and Wales[11]. At

least part of the reason for these differences is the different diagnostic attitudes of doctors and investigators in various places[11].

Polycystic Kidney Disease accounted for only 4.7% of cases, similar to results obtained in England and Wales (5.9%), USA (3.5%) and Australia (7%)[11].

Analgesic nephropathy was encountered in three patients with chronic deforming rheumatoid arthritis who had no other risk factor for renal disease. Two of them were females and one male.

The unknown cause group:

The cause of chronic renal failure could not be established in 27.5% of patients most of them presenting late in the course of their illness. The same is seen in many studies worldwide. In Saudi Arabia the unknown group forms 55.9% of patients[3]. In England and Wales it forms 17%[11]. Most of our patients in this group were young, with a negative history of renal disease, hypertensive and hypervolaemic. Their sonographic examinations showed small kidneys, with smooth outline and without abnormalities in the pelvicalyceal system. These features are consistent with chronic glomerular disease but could not be labeled so in the absence of a definite proof.

Conclusion

The etiology of ESRD could not be established in a significant proportion of patients. Obstructive nephropathy, mostly stone related was the commonest identifiable cause followed by diabetic nephropathy, hypertensive nephrosclerosis and reflux nephropathy (chronic pyelonephritis). A definite diagnosis of glomerulonephritis was made in a small proportion of cases but we cannot exclude the possibility that many of the unknown cases were in fact cases of undiagnosed glomerulonephritis.

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