# Presentations, Aetiology and Outcome of Patients with Chronic Renal Failure admitted at Urology Department, Mayo Hospital Lahore A retrospective analysis of 1257 patients over a period of 10 years.

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**Chronic kidney failure is a common and serious medical problem. It is characterized by progressive destruction of renal mass with irreversible sclerosis and loss of nephrons. End-stage renal (kidney) disease is the point in this progression when the kidneys no longer function well enough to support life. The objective of this retrospective study is to analyze different patrons of chronic renal failure its etiology and outcome. Over a period of ten years starting from January 1992 a total of 1257 patients presents with the diagnosis of chronic renal failure to the NephroUrology Department of Mayo Hospital Lahore. The minimum age at presentation was 2.5 years and maximum age was 66 years with mean age of 37.8 years. Malaise, loss of energy, nausea, vomiting and symptoms of anemia were the major presentation in all the patients. Uncontrolled Diabetes Mellitus was seemed to be the major cause of chronic renal failure which was diagnosed in 441 patients, followed by uncontrolled hypertension in 253 patients, polycystic kidney disease in 107 patients, Glomerulonephritis in 97 patients, reflux nephropathy in 96 patients, obstructive (stones) nephropathy in 78 patients, drugs/nephrotoxic agents 39 patients, congenital renal obstructions 21 patients and hypoplastic kidney in 03 patients. 339 (27%) patients were primarily put on to conservative treatment. In 568 (45%) patients haemodialysis was started and in 350 (28%) patients peritoneal dialysis was started. 8.51% (n=108) patients under went renal transplantation.**

**Key words: Chronic renal failure, Glomerular filtration rate, Dialysis, Renal Transplantation.**

Chronic renal failure (CRF) is characterized by progressive destruction of renal mass with irreversible sclerosis and loss of nephrons over a period of at least months to many years, depending on the underlying etiology[1,2]. Glomerular filtration rate (GFR) progressively decreases with nephron loss, and the term CRF should be reserved more specifically for patients who's GFR is less than 30 ml/min[3]. End-stage renal disease (ESRD), usually associated with signs and symptoms of uremia, is the term reserved for patients whose GFR has declined to levels of less than 10 ml/min[3,4,5]. Although chronic kidney failure is sometimes caused by diseases of the kidneys themselves, the most common causes are related or caused by other diseases[6]. The list of diseases that can cause chronic kidney failure is long, but the major causes are diabetes and high blood pressure. Although the exact incidence of CRF at its different stages is unknown, ESRD has reached epidemic levels, causing a major burden to health care resources. The incidence of new patients with ESRD in the United States in 1998 was 85,520, representing an incident rate of 308 cases per million populations; the prevalence on December 31, 1998, was 323,821 patients, representing a prevalence rate of 1160 cases per million populations[7,8]. An annual increase in incidence rate of approximately 7% per year since 1978 has occurred. Internationally the incidence rates of ESRD have increased steadily internationally since 1989. The United States has the highest incident rate of ESRD, followed by Japan. Japan has the highest prevalence per million populations, with the United States taking second place[9,10]. Situations are also most similar in Pakistan.

As far as chronic renal failure is concerns in our population very few studies are available, the objective of this retrospective study is to analyze different patrons of chronic renal failure its etiology and outcome.

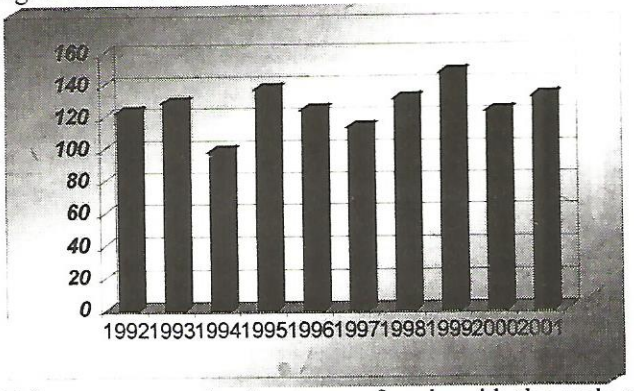
## Material and methods:

This retrospective analylitical study was carried out at department of NephroUrology and Transplantation, King Edward Medical College and Mayo Hospital Lahore from 1992 to 2001, to present the data of ten years. The record of last ten years was analyzed to know the incidence, etiology and out come of chronic renal failure. For the purpose of study international criteria were used for diagnosis of chronic renal failure (GFR<30ml/min and end stage renal disease (GFR<10ml/min). The sex and age at the time of presentation were noted. The occupation of the patient was noted for possible relationship with renal failure. History of diabetes mellitus, hypertension, drug intake, fever etc all were noted. The investigations regarding renal functions including urea, creatinine, serum potassium and DTPA renal scan were noted. The results of renal biopsy were also recorded. The treatment options either conservative, peritoneal dialysis, haemodialysis or renal transplantation was also noted. The out come of the patients in terms of health, disability, renal functions detoriation or improvement and mortality were noted. The data is analyzed using SPSS and EPI-INFO 6 software systems.

**Results:**

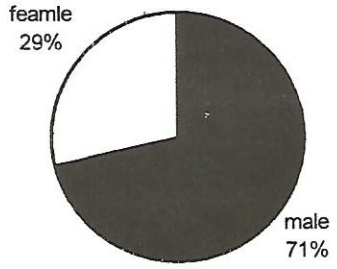
Over a period of ten years starting from January 1992 a total of 1257 patients presents with the diagnosis of chronic renal failure to the NephroUrology Department of Mayo Hospital Lahore (Fig. I).

Fig. I. Year wise distribution of CRF.




Male sex was predominant over female with the male to female ratio of 2.5:1 (Fig. II).

Fig. II. Sex distribution.




The minimum age at presentation was 2.5 years and maximum age was 66 years with mean age of 37.8 years. Most of the patients were in their fourth and fifth decade of life (Table 1).

Table 1. Age distribution.

| Age range | No of patients | %age |
|---|---|---|
| 0-10 | 55 | 4.5 |
| 11-20 | 139 | 11 |
| 21-30 | 207 | 16.5 |
| 31-40 | 396 | 31.5 |
| 41-50 | 237 | 18.5 |
| 51-60 | 188 | 14.5 |
| 61 and above | 35 | 2.5 |
| Total | 1257 | 100 |

Malaise, loss of energy, nausea, vomiting and symptoms of anemia were the major presentation in all the patients; in 767 patients it was primary presentation and rest of the patients it being secondary presentation associated with other primary presentations (Table 2).

Table 2. Presentations

| Primary Presentation | No of pts | %age |
|---|---|---|
| Odema (peripheral and pulmonary) | 317 | 25 |
| Nausea, vomiting | 254 | 20 |
| Symptoms of Anemia | 211 | 16.75 |
| Malaise. Loss of energy | 179 | 14.25 |
| Musculoskeletal pains | 173 | 13.75 |
| Neuropathies | 68 | 5.5 |
| Failure to thrive, mental slowing (in children) | 43 | 3.5 |
| Nocturia and polyurea (in children) | 12 | 0.95 |
| Total | 1257 | 100 |

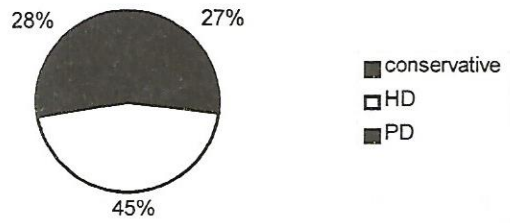
Final cause of the renal failure was established in all except 199 patients; where in 109 patients either follow-up was lost during the process of diagnosis or the patient died and in 90 patients the diagnosis couldn't be made despite investigations available with us. Uncontrolled Diabetes Mellitus was seemed to be the major cause of chronic renal failure which was diagnosed in 441 patients, followed by uncontrolled hypertension in 253 patients, polycystic kidney disease in 107 patients, Glomerulonephritis in 97 patients, reflux nephropathy in 96 patients, obstructive (stones) nephropathy in 78 patients, drugs/nephrotoxic agents 39 patients, congenital renal obstructions 21 patients and hypoplastic kidney in 03 patients. In rest of the 13 patients diagnosis of Amyloidosis, SLE etc were made (Table 3).

Table 3. Causes of renal failure.

| Causes | No of pts | % age |
|---|---|---|
| Diabetes mellitus | 441 | 35 |
| Hypertension | 191 | 15 |
| Polycystic kidney disease | 92 | 7.3 |
| Glomerunephritis | 53 | 4.2 |
| Reflux nephropathy | 60 | 4.7 |
| Obstructive Nephropathy | 63 | 5 |
| Drugs/nephrotoxic agents | 37 | 2.9 |
| Congenital renal obstruction | 21 | 1.6 |
| Hypoplastic kidney | 03 | 0.23 |
| Not known | 196 | 15.6 |
| Couldn't established | 90 | 7.4 |
| Systemic (SLE, Amyloidosis) | 13 | 1.03 |
| Total | 1257 | 100 |

Out of those 1257 patients 339 (27%) patients were primarily put on to conservative treatment with salt and water restrictions and medications and were advised for regular monthly follow-up with monitoring being done with serum creatinine and blood urea levels. In 568 (45%) patients haemodialysis was started and in 350 (28%) patients peritoneal dialysis was started (Fig. III).

Fig. III. Treatment




**Discussion:**

Chronic kidney failure is a common and serious medical problem. Problems may begin as a disease of the kidney itself or be caused by several other medical problems[11]. In its natural course, kidney disease gets more severe with time—meaning the kidneys progressively lose their ability to perform their normal functions. End-stage renal (kidney) disease is the point in this progression when the kidneys no longer function well enough to support life[12,13]. Either dialysis or a kidney transplant is required. Medical management of this problem is aimed at slowing the progression of the disease and treating the underlying illness that may be causing it. Approximately one million nephrons are present in each kidney, each contributing to the total GFR[14]. Regardless of the etiology of renal injury, with progressive destruction of nephrons, the kidney has an innate ability to maintain GFR by hyperfiltration and compensatory hypertrophy of the remaining healthy nephrons[15]. This nephron adaptability allows for continued normal clearance of plasma solutes such that substances such as urea and creatinine start to show significant increases in plasma levels only after total GFR has decreased to 50%, when the renal reserve has been exhausted. The plasma creatinine value will double with a 50% reduction in GFR[16,17].

In our series the male to female ratio was 2.5:1, which is similar to local and international data. The minimum age at presentation was 3.5 years while in western world the diagnosis can be possible to make much earlier. The patron of presentation and causes in our study is different from western studies probably because the major causes as Diabetes and hypertension are very well controlled in western population because of the patients awareness, proper diagnosis and in most of the countries free treatment. Table 4 shows difference of our presentations with studies by Sesso R[24] and Schmidt RJ[23]. Table 4 shows that DM and Hypertension which are equally controllable diseases are associated with almost 50% of the patients in our series that is very different from studies by Sesso et al and Schmidt et al, where only about 17%-18% of the patients had DM or Hypertension. Likewise, in western studies about 21% to 25% patients were diagnosed as glomerunephritis that is lacking in our study probably because of the low biopsy rate in our study that again signifies[18,19,20]. Chronic renal failure due to drug intoxication and nephrotoxic drugs as a cause of renal failure is almost double as compared to other studies probably because of more free availability, usage and above all miss use of drugs and usage of heavy metals in medications by Quacks. In about 23.1% patients no diagnosis can be made that is again much higher than international studies that shows poor facilities and compliance of the patients.

Table 4. Comparison of causes

| Causes | Present study | Sesso et al[24] | Schmidt et al[23] |
|---|---|---|---|
| Diabetes mellitus | 35 | 13.1 | 12.8 |
| Hypertension | 15 | 4 | 5.6 |
| Polycystic kidney disease | 7.3 | 8.2 | 6.5 |
| Glomerunephritis | 4.2 | 24.1 | 21.3 |
| Reflux nephropathy | 4.7 | 8.3 | 7.5 |
| Obstructive Nephropathy | 5 | 2.1 | 3.6 |
| Drugs/nephrotoxic agents | 2.9 | 1.2 | 1.0 |
| Congenital renal obstruction | 1.6 | .75 | .90 |
| Hypoplastic kidney | 0.23 | 1.0 | 1.5 |
| Not known | 15.6 | 14.4 | 10.5 |
| Couldn't established | 7.4 | 00 | 1.5 |
| Systemic (SLE, Amyloidosis) | 1.03 | 5.8 | 6.9 |
| Renal vascular disease | 00 | 6.8 | 7.9 |
| Renal vasculitis | 00 | 0.7 | 2.3 |
| Alport syndrome | 00 | 0.5 | 3.3 |
| Other hereditary | 00 | 0.6 | 7.8 |

Renal transplantation as the first choice for the treatment of chronic renal failure is an established treatment all over the world with CAPD and HD are the second line treatment or are done till the patient is waiting for renal transplantation[21,22,25] but in our series only 8.51% (n=108) patients under went renal transplantation.

**Conclusion:**

- Chronic Renal failure registry should be made so that all the patients with chronic renal failure should be registered and properly followed up.
- Renal transplantation as the first treatment of choice is practiced world over, that is make possible due to cadaver availability of organs, we need to revive our views and laws about this law.

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