CLINICAL AUDIT OF HEMODIALYSIS PATIENTS AT DIALYSIS CENTRE AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: The incidence of end stage renal disease (ESRD) is between 100-150 new cases per million per year, with a disease burden of 27000 new cases each year in Pakistan. The treatment of first choice for these patients is renal transplantation, which is available to only 5% of patients, rest have no other option except to resort to dialysis to sustain their life. **Objective:** The objective of the study was to critically review and analyze the data of patients on the basis of etiology, dialysis type and outcome during the last three years so as to improve the patient care. **Patients and Methods:** In this descriptive study, all the patients, who underwent dialysis during three years (2009-2011) was retrieved from the statistics department. Variables of interest were identified. Data was collected, entered and analyzed in SPSS version 15. The results were then compared with national and international studies on the subject. **Results:** In this study, a total of 457 patients under went dialysis at the centre and 14687 dialysis sessions were performed during the period under study. Male to female ratio was 1.6:1 and mean age was 44.15 years. Hypertension (70%) was the major cause of ESRD. Fifty three percent patients had an arterio-venous fistula and 23.63% were suffering from hepatitis "C" before the first dialysis. Average survival was 7.7 months and 46.17% deaths were recorded. **Conclusion:** The management of ESRD being very expensive, government alone with a less than 0.5 to 0.8 percent of the GDP allocation for health cannot extend this facility to all the sufferers. The society should follow healthy life style practices so as the preventable causes of ESRD such as hypertension and DM can be controlled. Social groups should be formed in which these patients should actively participate, encourage and guide each other to improve their quality of life.

Key Words: Hemodialysis, ESRD, CRF, Stone disease, Sargodha, Pakistan.

INTRODUCTION

End stage renal disease (ESRD) is the final outcome of many underlying diseases affecting the kidney insidiously or acutely. The incidence of ESRD, in Pakistan, is between 100-150 new cases per million per year with a disease burden of 27000 new cases each year.[1,2,3] The treatment of first choice for these patients of ESRD is renal transplantation, however, only 5% of patients have access to this treatment for one reason or the other. Most patients have no other option except to resort the dialysis to sustain their life, though accompanied with many complications.[4]

Chronic renal failure / end stage renal disease is the outcome of a number of diseases affecting the kidneys directly or indirectly. The medical management is not curative and only addresses symptomatic problems of the patients, with limited life expectancy.[5] However, dialysis even though it is also not curative, provides a relatively better quality of life, when used in conjunction with medical therapy. The facility of hemodialysis is available only to an estimated 10-40% of the patients suffering from ESRD.[6,7] A successful renal transplant is the best treatment option with a good long term life expectancy and quality of life, which can be significantly improved with care and correction of abnormalities like anemia seen in patients of ESRD,[8] but unfortunately only 5% patients have access to renal transplant in a developing country like Pakistan.[4]

The objective of the study was to critically review and analyze the data of patients on the basis of etiology, dialysis type and outcome during the three years so as to improve the patient care.

PATIENTS AND METHODS

This cross sectional, descriptive study was conducted in the Department of Urology, dialysis centre, a public private venture affiliated with the Sargodha Medical College. The reason of the patients who were on dialysis was retrieved from statistic department, it was critically reviewed for the variables like the age of the patient, gender, cause of renal failure, duration and number of dialysis carried out, hepatitis status and the outcome, during 3 years from 1st January 2009 to 31 December 2011. All the data was entered and analyzed in SPSS version 15.

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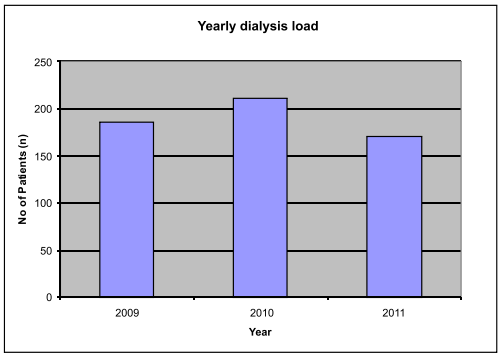
RESULTS

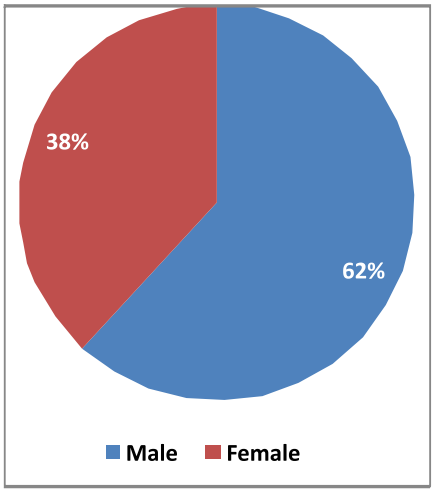
A total of 457 patients under went dialysis at our centre with yearly breakdown shown in Figure I.

Figure I: Year wise number of patients



Total dialysis sessions performed were 14687 averaging 408 sessions per month. Male to female ratio was 1.6:1, shown in Figure II.

Figure II: Gender wise distribution.



Mean age being 44.15 years (range 10-85 years). Various causes of end stage renal disease which were identified in our patients are shown in figure III, majority were suffering from hypertension (70%) other causes included, hypertension plus DM(10%), diabetes (5%), obstructive nephropathy (3.7%), drug intake (8.3%) from quacks or for attempted suicide and two cases from post partum hemorrhage (0.4%) (Figure III). Yearly distribution of the various diseases leading to ESRD, who were dialyzed at our centre, is highlighted in figure IV, it shows that hypertension was increasingly related to ESRD. About half of the patients 243 (53.17%) had an arterio-venous fistula made before the first dialysis and 214 (46.83%) patients had to be started with temporary central venous access line.

Figure III: Causes of ESRD in patients at dialysis centre.

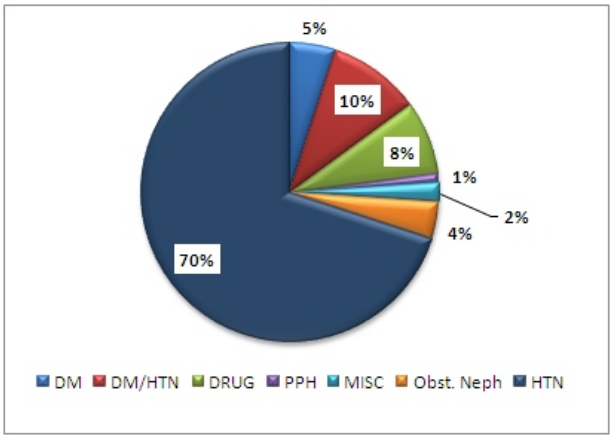


Figure IV: Yearly breakup of causes of ESRD of patients who underwent dialysis.

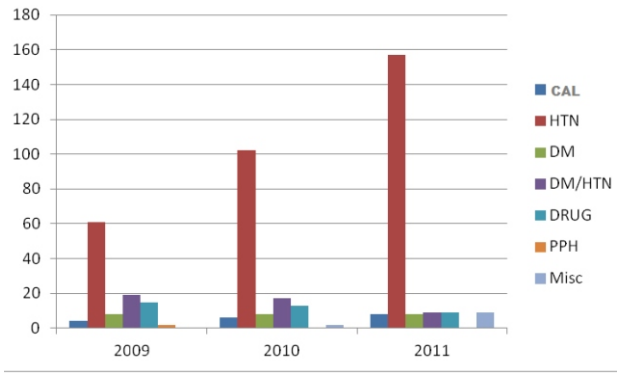
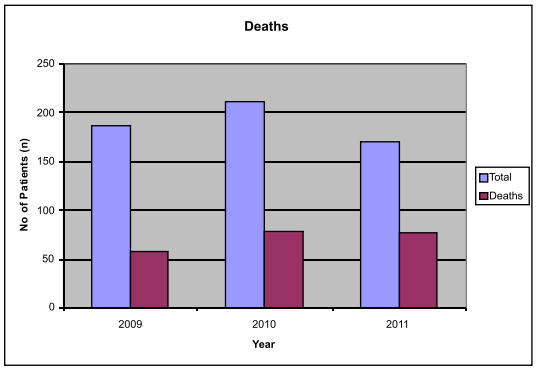


Figure V: Year wise number of patients and deaths.



One hundred and eight (23.63%) patients were suffering from hepatitis C at their first dialysis.

The average survival since starting of dialysis was 7.7 months (range 1day to 65 months). The longest

surviving patient with us is undergoing dialysis for the past 5 years and 5 months.

There were 211 (46.17%) deaths recorded, year wise breakup is shown in figure V. Other patients were either transferred to higher facilities for management of co-morbid conditions or complications, or were operated for treatable causes like stone disease, or had renal transplant, a few were visitors who left for their city and a few had dialysis in acute phase and once their condition resolved they did not require further dialysis.

DISCUSSION

The quality of life of a patient suffering from ESRD is very poor which can be assessed by at least thrice weekly dialysis requirement, which consumes nearly the entire day of such patient. An indwelling catheter if the patient has not opted for arterio-venous fistula, anemia, weakness along with poor appetite and dietary restrictions, nausea, vomiting, recurrent infections, inability to concentrate and at times fits and even more so a constant fear of death leading to depression are other factors responsible for a poor quality of life in these patients. The patient cannot go to a place where the facility of dialysis is not available.

Our study revealed that there were more male than female patients undergoing dialysis with a ratio of 1.6:1, this is in conformity with international studies where male gender is associated with an increased risk of developing ESRD (adjusted odds ratio 1.41, 95% confidence interval 1.04 to 1.92).[9] Other probable reasons in our social setup being that the men, as bread winners of the family, are taken care of more as compared to the women and at times most of the women are not even brought for treatment. The mean age of patients undergoing dialysis in our centre was 44. 15 years, ranging from 10 years to 85 years, similar pattern was observed by Vinay Sakhuja[10] in India. The child was an odd one, not under the bell, as we do not routinely cater for children requiring dialysis at our center. Developing countries, in particular, are generally characterized by a lower age of the general population and, in addition, the average age of a patient commencing dialysis is considerably lower than that seen in the developed countries.[11]

The causes of the renal failure were analyzed and it was found out that majority (70.02%) of our patients were suffering from hypertension followed by combined hypertension and diabetes (10.07%), drug intake (8.32%), and diabetes alone having a small fragment (5.03%), PPH formed a tiny piece in the pie (0.44%). However, obstructive Nephropathy, secondary to calculus, had a significant share (3.72%) keeping in consideration the curable nature of the disease. When reviewing the international literature we found that most cases of renal failure, in the developed world, undergoing dialysis were secondary to diabetes followed by hypertension and glomerulonephritis[12] and very few were found to be caused by obstructive uropathy. The reason for this variation was investigated and it was found that the patients who reported for dialysis to our centre had consulted the medical facility once, end stage renal disease had already been established and the initiating cause was not known. Moreover, one of the major group as a cause of ESRD in developed countries is glomerulonephritis, the incidence being 8.9 in USA to 38.2 in Japan and point prevalence of 15.6 in USA to 53.5 in Japan.[12] It is forlornly mentioned that only a small fraction of patients presenting with microscopic hematuria and proteinuria undergo renal biopsy to diagnose this entity, therefore this large fraction of the cause of renal failure essentially remains undiagnosed. These patients develop hypertension during the course of disease and thus had been included in the hypertensive group showing an alarmingly high percentage of patients of ESRD having hypertension as a cause in our study. Patients who suffered from renal failure were mostly from the poor and illiterate section of the society and remained in a state of denial and continued taking medicines from quakes till it was very late. Most of the patients also believe that hemodialysis is an addiction and once a person is started on dialysis he or she would never be able to live without it. So at the time they present to the physician they already have hypertension and it was not clear whether it lead to renal failure or it was secondary to the renal failure.

Diabetes is one of the leading causes of ESRD in the developed world[12] but we had relatively fewer cases of diabetes as the diabetic patients seen at our centre belong to the illiterate section of the society, living in rural areas, who usually resort to traditional/ homeopathic medicine and do not live long enough to suffer from renal complications. Some who report to the medical facility have hypertension and thus are included in either hypertension alone or combined

hypertension and diabetes group. Drug ingestion (8.32%) was also a major cause of ESRD in our study. An interesting finding in this regard was that most of the patients suffering from end stage renal disease secondary to drug ingestion were below the age of 40, often in their late teens and early twenties, the cause being attempted suicide or taking an un-prescribed drug for body building or enhancing stamina and potency. Those around 40 to 50 years had taken drugs from quakes for purpose of enhancement of sexual power. The quakes use heavy metals like lead, silver, gold and mercury. Other ingredients may include arsenic and various herbs and animal parts to improve impotence. In our practice we have found that if a patient does not fit into any of the routine causes of renal failure a keen probing in the history of ingestion of traditional medicine in the recent past would give you a clue.

Obstructive uropathy as a cause was also noted and various diseases were found in the background including most commonly the stone disease, prevalence of which in this part of the world is from 4-20%.[13] A misconception amongst the common people regarding renal stones is that even large stones can be cured by taking homeopathic or herbal medication. Another reason is poverty and as allopathic treatment is perceived to be costly, patients resort to self medication or treatment from the homeopaths /quacks. Even more so the lack of public awareness also contributes heavily towards it. We had only two patients of PPH (0.44%), although post partum hemorrhage is relatively more frequent than the two patients presented in our study but most suffer from acute renal failure and are subjected to peritoneal dialysis when required and majority recover.

It is not usual that patients suffering from chronic renal failure be started on dialysis using a temporary venous access line (double lumen catheter) because the clinician usually assesses the course of the disease and recommends formation of arterio venous fistula quite early in the course of the disease.[14] But our experience reveals that about half of the patients (46.83%) did not have an arterio venous fistula made at the time of their first dialysis, which is a substantial number considering the chronic nature of the disease and also the fact that the facility and expertise of arterio venous fistula surgery are available locally at our hospital. Central access catheter is accompanied with increased morbidity and mortality,[15] therefore a conscious effort should be made to construct an arterio venous fistula early during the disease.

More than 23.63% of patients undergoing dialysis were found to be suffering from hepatitis C infection at the time of first dialysis. Although the prevalence of hepatitis is quite low with an estimated 3% population affected worldwide[16] and 0% in rural areas to 1.85% urban areas of India.[17] Exact prevalence, for Pakistan, is not known but it is considered to be same as that for India, therefore 23 percent is a significant figure, the reason for this is probably the nature of disease requiring repeated injections and blood transfusions. Even more so, as there is no trend for donation of blood among the general public therefore professional donors have emerged who give blood for money, the prevalence of HCV in such commercial donors may be as high as 87.3%.[17,18] Despite meticulous care being taken to prevent transmission of hepatitis from one patient to another forty eight patients (10.5%) became positive during the course of their dialysis program.

Average survival of the patients at our centre was 7.7 months (range 1 day to 5 years and 5 months). The patient who had maximum number of dialysis at our centre had 489 sessions over a span of 3 years and 11 months and had expired in June 2010. The longest surviving patient on dialysis has undergone 295 dialysis sessions till 31 December 2011, the reason for his less number of dialysis sessions is that he requires dialysis less frequently being compliant to the treatment and dietary advice.

At any one time there are about 50 -80 patients under going dialysis, per cycle, in our centre, new cases are constantly being added to the pool and unfortunately many leave us too. Less than optimal treatment is an important factor responsible for grater morbidity and mortality, in patients suffering from ESRD.[19,20] Death has been accepted as part of this disease, because there is poor trend of donation of kidney among the general public/relatives of the patients. Moreover the laws governing organ donation are very strict, so as to prevent organ selling, therefore the only possible choice left is cadaver organs. However, that too is a remote possibility as the relatives of the deceased consider it humiliation of the dead body. Keeping this social environment in mind the high number (46.17%) of mortalities recorded at our centre is understandable. This

increased mortality rate is also observed in other developing countries when compared with the developed world.[21] The management of this disease is very expensive and puts a lot of burden on the entire family of the patient without any positive out come. Well-to-do people of the society should come forward and establish such centers or participate in running them as government alone cannot extend this facility to all the sufferers.[22] The doctors should play their part in early diagnosis of the patients likely to end up with chronic renal failure and timely diagnose the treatable causes correctable by surgery. They should educate /persuade the patients to strictly follow the diet plan, lead a healthy life style and regularly take medication.

CONCLUSION

Our study revealed that in our population, majority of the patients of ESRD, have treatable underlying causes and high mortality. The management of ESRD is very expensive and puts a lot of financial burden on the resources. The doctors should identify and treat the diseases leading to ESRD and stress on the patient to comply with treatment and reinforce the out come if they fail to do so. The society should follow healthy life style practices. Social groups should be formed in which these patients should actively participate and encourage and guide each other to improve their quality of life.

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