Status of Chronic Kidney Disease Patients Registered in National Kidney Center, Banasthali, Kathmandu

Abstract

Chronic kidney disease is a worldwide public health problem. In Nepal, Chronic kidney disease patients are increasing and the management of this disease is very expensive compared to other chronic diseases. We assessed the socioeconomic status of chronic kidney disease patients registered in National Kidney Centre, Banasthali, Kathmandu.The study used descriptive cross sectional design. Ninety six samples were collected between 15- 31 October, 2012.The mean age of the patients was 47 years, with almost half of the patients (46%) from 41-60 years age group. Among the patients, 65 % were male, 85% were married, 80% were literate, 57% were past smoker and 75% were drinker and 59% were from Kathmandu valley. Likewise, most of them were Newar, work as housewife as the main occupation. One third (37%) had to sell their property for the treatment. On an average patient spent Rs.240000 per year in dialysis. Similarly, medication cost was Rs.180000 and transplantation cost was Rs.500000 to 1000000. Preventive measures of the disease and subsidy in the treatment will be beneficial for the needy people.

Key words: Kidney,Chronic Kidney Disease, Dialysis

Mishra D, Koirala P**

**Department of Public Health, Manmohan Memorial Institute of Health Sciences, Nakkhu, Lalitpur, Nepal.*

Corresponding author:

Ms. Durga Mishra, Department of Public Health, Manmohan Memorial Institute of Health Sciences, GPO Box 15201, Lalitpur, Nepal; Email: durgamk07@gmail.com

Introduction

Chronic kidney disease (CKD) includes conditions that damage kidneys and decrease their ability to keep the person healthy by doing the jobs listed. If kidney disease gets worse, wastes can build to high levels in blood and make the person feel sick. At the same time complications like high blood pressure, anemia, weak bones, poor nutritional health and nerve damage may be developed. Similarly kidney disease increases the risk of having heart and blood vessel disease. These problems may happen slowly over a long period of time [1]. Chronic kidney disease may be caused by diabetes, high blood pressure and other disorders. Early detection and treatment can often keep chronic kidney disease from getting worse. When kidney disease progresses, it may eventually lead to kidney failure, which requires dialysis or a kidney transplant to maintain life. Dialysis is the process of cleaning the blood by removing waste products, toxic products and excess water [2].

There is a wide variation in prevalence rate, expressed as number of patients per million populations, among countries. There is a strong relationship between prevalence rate and per capita income, and governmental infrastructure, which can influence both the availability and quality of dialysis and transplantation services [3].

The prevalence rate of Renal Replacement Therapy (RRT) is 644 patients per million people in the 15 countries of the European Union7, where the average gross income is over US $22,000 per capita, as compared with a prevalence rate of 166 patients per million population in Central and Eastern European countries, where the average per capita income is US $4480 [4].

The extreme examples, the dependence of availability of dialysis is even more striking. Prevalence rate of End Stage Renal Disease (ESRD) is 582 patients per million people in Finland, which had an average income of US $25,130 in the year 2000, and as low as 52 patients per million people in Bangladesh, where the average income is only US $370 per capita [5].

Treatment of ESRD is a low priority for cash-strapped public hospitals and in the absence of health insurance plans. In India and Pakistan, less than 10 percent of all patients receive any kind of RRT [6]. The vast majority of patients starting heamodialysis dies or stops treatment because of cost constraints within the first 3 months. Although renal transplantation is the cheapest option, but about 5 percent of all patients with ESRD have a transplant.

Regarding the management of kidney disease in Nepal, there are few centers for diagnosis and management of kidney disease. Bir Hospital, the national and tertiary level hospital and other some regional hospitals provide the services for management of kidney disease from government side which can not hold the increasing trend of kidney disease prevalence. Government of Nepal recognized health is fundamental human right, but for management of kidney disease it is only for slogan. On the other hand, the services provided by the private Hospital and Nursing Home are also negligible comparison with increasing prevalence of kidney disease in Nepal. In Nepal Medical colleges have also an important role in providing the services for diagnosis and management of Kidney Disease. The National Kidney Centre (NKC) is the largest haemodialysis treatment facility in Nepal. It has capacity to serve up to 90 patients per day for dialysis, and 40 patients per day for consultation. The only centre in Nepal that provides dialysis for positive (HIV, Hepatitis B and C) people as of today [7].

There is the increasing number of kidney patients all over the world and the socio-economic strength determines the seeking of hemodalysis and kidney transplant services by patients. National kidney centre is the only kidney centre in Nepal and only about 300 people are able to get dialysis and kidney transplant among 2600 new cases per year. This study is an attempt to determine the status of CKD patients registered in National Kidney Centre.

The overall objective of this study was to explore the status of chronic kidney disease patients registered in National Kidney Centre, Banasthai.

MATERIALS AND METHODS

We followed descriptive cross-sectional design. All the chronic disease patients registered in National Kidney Centre during the study period (15- 31 October, 2012) were the study population and sample size was 96. Non- probability convenience sampling technique was used and primary data were collected through interviewing technique and structured questionnaire were used. The questionnaire was pretested. An exit interview with the CKD patients or visitors was carried out. Data was analyzed using SPSS 16.

Permission was taken from the study centre before the study was carried out. Verbal consent were taken from each participant and the participants were assured of confidentiality and informed that their participation was voluntary.

RESULTS

Socio-cultural and demographic status of the respondents

Table 1 shows overview of the socio-cultural and demographic status of the respondents. Nearly half of the patients (45.8%) belonged to 41-60 years. Majority were male (64.6%), married (85.4%), hindu (76.0%). Likewise, 40.6% came from outside of Kathmandu valley (Table 1). By ethnicity, 37.5 % were Newar, 20.8% were Chhetri and 19.8% Brahmins. Majority of them had other type of occupations such as driving, teaching and labourrs (40.6%) business (16.7%), and farming (13.5%).

Table 1 : Socio -Cultural and Demographic status of the respondents (N=96)

Characteristics	Frequency	Percent
Age group		
0-20 years	5	5.2
21-40 years	29	30.2
41-60 years	44	45.8
61-80 years	16	16.7
81 and above years	2	2.1
Sex of the respondent		
Female	34	35.4
Male	62	64.6
Marital Status		
Married	82	85.4
Unmarried	14	14.6
Ethnicity		
Brahmin	19	19.8
Chhetri	20	20.8
Newar	36	37.5
Others	21	21.9
Religion		
Buddhist	16	16.7
Christian	6	6.2
Hindu	73	76.0
Others	1	1.0
Occupation		
Business	16	16.7
Farming	13	13.5
Housewife	13	13.5
Student	15	15.6
Others	39	40.6
Education		
Illiterate	18	18.8
Primary level	12	12.5
Lower secondary level	11	11.5
Secondary level	32	33.3
Higher secondary level	15	15.6
Higher education	8	8.3
Location		
Kathmandu	30	31.2
Bhaktapur	5	5.2
Lalitpur	22	22.9
Outside Kathmandu valley	39	40.6

Diseases related findings

Among the 96 respondents 32 were under medication, another 32 were under dialysis and remaining 32 had transplanted their kidney. Ninety percent were diagnosed earlier (5 - 10 years) and 10 percent of were newly (within a year) diagnosed as CKD. Majority, (63 %0 had the history of hypertension, 38% had history of diabetes and were on treatment. Majority (36.5%) of the respondent had to sell their personal properties to manage money for their treatment meanwhile very few of them (5 percent) were sponsored and 6 percent by medical insurance and rest of them managed by others means such as family support, street beg, help by relatives and others(Table 2).

Table 2: Disease related results N=96

Characteristics	Frequency	Percent
Duration of CKD		
Less than 1 year	10	10.4
1-5 years	60	62.5
6-10 years	21	21.9
More than 10 years	5	5.2
History of other chronic disease		
Hypertension	59	62.5
Diabetes	36	37.9
Others	30	31.6
Financial management		
Medical insurance	6	6.2
Property sold	35	36.5
Sponsor	5	5.2
Others	50	52.1

Treatment (medications and dialysis) related findings

Majority were enrolled in regular medication (87.5 %). The respondents had to spend about Rs. 15,000 per month including transportation, medicine and investigation (Table 3).

Table 3: Treatment (medications and dialysis) related findings

Descriptions	Frequency	Percent
In regular treatment		
Yes	28	87.5
No	4	12.5
Economic burden (N= 32)	Cost Incurred (Rs.)	
Investigation	1981	
Bed charge and other procedures	7343	
Transportation and food	6484	
Number of dialysis per week	Frequency	Percent
1 time	3	9.36
2 times	23	71.85
3 times	5	15.63
More than 3 times	1	3.16
Cost per dialysis (N=32)		
Rs 2500 - 3500	18	56.25
Rs 3600-4500	11	34.37
Rs 4600 and above	3	9.38
Other costs per dialysis		
Investigation (Rs.)	1765/visit	
Bed charge and other procedures	9818/visit	
Transportation and food	8031/month	

Transplant related status

Majority (76%) had to come for dialysis twice/ thrice a week. Likewise, 57 % had the financial burden for each dialysis was Rs 2500 - Rs 3500 meanwhile 35% of them had to spend Rs 3600-Rs 4500 . The total amount spent by the patients who were under haemodialysis was Rs. 20,000/- per month which included cost of dialysis, investigation, medicine, bed charges and transportation . The annual expenditures for the management of chronic kidney disease was Rs. 2,40,000 (Table 4).

About 51% of patients transplanted kidney during medication followed by CKD patients under dialysis. Majority of the patient transplanted their kidneys in India because of cost effectiveness. About 16 percent of CKD patients transplanted their kidneys in Bir hospital and least number in Teaching hospital. About 57 percent of the patient transplanted their kidneys on the cost range of Rs 5 lakhs-Rs10 lakhs. In other hand about 32 percent of CKD patients worth Rs 11 lakhs-15 lakhs for their kidney transplantation. Most of the transplantation were done in India due to cost effectiveness. Other costs born by transplanted patients was Rs. 29,100/- per month for medicine, routine investigation, hospitalization and transportation from home to hospital expect transplantation charge and others. In this way a single patient paid Rs.3,49,200/- per year for management of disease after transplant.

Table 4: Timing, place and cost of Kidney transplant (N= 32)

Description	Frequency	Percent
Timing of transplant		
During dialysis	17	53.12
During medication	15	46.88
Place of transplant		
Bir hospital	5	15.62
India	24	75.0
Teaching hospital	3	9.38
Cost of transplant		
5 lakhs-10 lakhs	18	56.25
11 lakhs-15 lakhs	10	31.25
16 lakhs and above	4	12.5
Other costs of transplant		
Investigation	1937/visit	
Bed charge and other procedures	13730/visit	
Transportation and food	13434/month	

DISCUSSION AND CONCLUSION

We assessd the socioeconomic factors of chronic kidney disease patients registered in National Kidney Centre, Banasthali, Kathmandu. The mean age of the CKD patients was 47 years while the age group between 41-60 years comprises highest percent. This shows thatthe prevalence of the CKD is seen in this age group.

Majority (85%) being from married group shows that the married individual have more chances of CKD because of our marriage culture. The study shows the highest number of patients from Newar caste. Many patients main occupation was housewife, farming, student and business. This signifies that housewife, student and farmers are vulnerable to develop kidney disease. 80% of the total patients were literate .Among the total patients, 57% had history of smoking and 75% had history of drinking. There were about 31% of CKD patients from Kathmadu valley and about 41% from outside valley. Similarly, 37% of the patients sold their property for the management of chronic kidney disease.

The average cost for CKD patient under dialysis was Rs.2, 40,000/- per year for management of disease. Similarly, CKD under medication cost Rs.1, 80,000/- and the cost for transplantation was Rs.5-10 lacks available in India, and the medication cost for transplanted patients was Rs. 3, 50,200/- per year. Most of the patients can't afford it and leave the medication under treatment process. This huge amount is very high as compare to per capita income of developing country like Nepal. So, this study is similar with the study done by Amaranayake p.w.p in Sri lanka on Presence of end stage CKD is negative impact on the economic performance of the paddy farming community in Anuradhapura district [8]. Similar study done by Hossain MP and et.al as poverty and social deprivation are emerging as major risk markers for CKD in both developed and developing countries [9]. Original article, Kidney International 2005 says that the cost of renal replacement therapy are exceeding high and are consuming a significant proportion of health care budget of developed countries while in developing countries out of reach [10]. Additional research is needed to assess the impact of wealth and social contexts in which individual are embedded and the socio-cultural factors. In future, prevention programs need to be launched for control of this disease and medical insurance will be helpful for the poor and needy people. Similarly, availability and accessibility of the kidney transplantation services in the country including subsidization in investigation and hemodialysis for the needy people. Further collaboration with multi-stakeholders including NGO/INGO and periodic health examination for screening of CKD will be supportive in management and control of the chronic kidney disease..The study was limited to only one treatment centre of the country. Therefore, it may not reflect national scenario and cannot be generalized.

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REFERENCES

1. National Kidney Foundation, Inc., 30 East 33rd Street, New York, NY 10016, 1-800-622-9010. Kidney Disease, http;//www.kidney.org/
2. Causes of CKD, http: //www.nature.com/ki/journal/v68/n98s/full/4496430a.html
3. Berthoux F, Jones E, Gellert R, Et Al, Epidemiological Data of Treated End-Stage Renal Failure in The European Union (EU), Report Of The European Renal Association Registry And The National Registries, Nephrol Dial Transplant, 1995-1999, 14: p. 2332–2342.
4. Rutkowski B, Changing Pattern Of End-Stage Renal Disease In Central And Eastern Europe, Nephrol Dial Transplant, 2002, 15 : p. 156–160.
5. United State Renal Data System, http://www.usrds.org
6. Sakhuja V, Sud K, End-Stage Renal Disease In India And Pakistan: Burden Of Disease And Management Issues, Kidney International, 2003, 63(Suppl. 83): p. 115–118.
7. Friends Of National Kidney Center, http://hecaf.org
8. Economic Impact Of Chronic Kidney Disease (CKD) On Paddy Farming Community In Anuradhapura District Of Sri Lanka By Amaranayake.P.W.P.
9. CKD And Poverty- A Growing Global Challenges. Hossain MP And Et Al. Sheffield Kidney Institute, University Of Shiffield Herries Road, Sheffield, UK Available At Http://Www.Ncbi.Nlm.Nih.Gov/Pubmed/19101400
10. Chronic Renal Diseases As A Public Health Problem: Epidemiology, Social, And Economic Implications, Kidney International, 2005, http://www.nature.com/ki/journal/v68/n98s/full/4496430a.html