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TO STUDY ECONOMIC BURDEN OF PATIENT WITH CHRONIC KIDNEY DISEASE

Economics

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KEYWORDS

INTRODUCTION:

Global burden of disease (GBD) study 2015 reported chronic kidney disease (CKD) as ranked 17th among cause of death globally and 8th leading cause of death in India.(1) Increasing life expectancy in country, the prevalence of chronic diseases is also increasing like popularly diseases like Diabetes Mellitus, Hypertension and chronic kidney disease. In America, there is 30% increase in prevalence in chronic kidney disease in last one decade.(2) Chronic kidney disease, an understated but highly prevalent condition affecting millions, who die each year because they do not have access to affordable treatment.

Dare et al reported in their paper that 2.9% of total deaths in India during 2010 to 13 among adult due to renal failure, this numbers are doubled to 2001-03 year deaths.(3) Thus it is clear that the kidney diseases and deaths due to them are increasing. Not only deaths are important but number of morbidity due to CKD is also need to understand economic point of view. End stage renal diseases (ESRD) sought chronic dialysis to the renal replacement therapy. There will sharp rise in demand of these services in country. Over two million people worldwide currently are able to receive treatment for dialysis or a kidney transplant to stay alive, yet this number may only represent 10% of people who actually require treatment.

The statistics worldwide is showing how prevalent and wide spreading this condition is, especially in developing countries like India is enormous. A major consequence of CKD is End Stage Renal Disease (ESRD). The global dialysis population was 1.1 million in 2002 and with 7% annual growth, is projected to exceed 2 million. The burden of CKD is expected to rise because of the increase in risk factor burden as well as demand for treatment as a result of improved economy. Study has reported that 2.618 million received renal transplant therapy in 2010 worldwide. They also projected the renal transplant therapy requirement worldwide, which is coming to more than double that is 5.439 million with predominant demand from Asian countries by 2030. (4)

Looking to the situation, there is urgent need to understand the cost factor of CKD in country India. The present study is thought to conduct with following objectives.

OBJECTIVES:

1. To investigate and determine the expenditure associated with Chronic Kidney Disease, direct cost and indirect cost burden.
2. To study the financial management of such patients in various strata of society in India

METHODOLOGY:

Study type – It is a cross sectional study which is hospital based.

Study Site – In Vadodara,Dhiraj Hospital where the dialysis facilities is available.

Sample size – Study sample was selected form Dhiraj Hospital. All

patients of CKD who are coming for dialysis are the study participants. The study participants who are coming to dialysis centre form 1 August 2019 to 30 September 2019 will be included looking to inclusion exclusion criteria. As this is an economics study we are going to collect time bound study participant recruitment.

Inclusions criteria- The study participants were patients suffering from chronic kidney disease and under going through dialysis . Male and female and even children were included.

Exclusions criteria – Those who are seriously ill and hospitalised were excluded. Also those who are not willing to give consent were excluded.

Method – The study was started after permission of institutional ethics committee. Data collection tool was designed for the study. The tool was tested with pilot study and modified accordingly. The final tool was used for data collection.

The study participants were approached at dialysis unit of hospital. The investigator took the informed consent of participants and interview will be initiated. Thus selected study participants were given pilot pretested questionnaire for data collection. The questionnaire consisted of socio-demographic information about participants and family, income expenditure of family, cost of treatment of CKD, drug cost of CKD, other drug cost and other direct & indirect cost of care and management of CKD will be collected. Cost of renal transplant therapy(RTT) and post RTT will also estimated if required. The study was to collect data of financial management of families in such chronic disease. Any government and/or non-governmental help for such cases was not collected. The participant's high, weight, BMI, other diseases history, family history, last laboratory investigations like serum urea, creatinine, blood glucose etc was collected.

Thus collected data was compiled in Microsoft Excel sheet. Then it was analysed by using statistical software. Chi Square test was applied as test of significance and Odds ratio was used to measure the strength of association. A p value of less than 0.05 was considered as statistically significant. The identified risk factors were considered in the study to find their association.

Observations and Results :

Total number of patients :52
Total number of observations from these patients : 7

Age
Table :- 1

	frequency	percent	Valid %	cumulative %
18-36	10	19.23	19.23	19.23
36-54	20	38.46	38.46	57.69
54-72	19	36.53	36.53	94.22
72-90	3	5.78	5.78	100

As per the table above shows the number of patients included in the study and their age limits.It shows that the maximum number of patients (38.46%) belonged to the age group of 36-54 years and the minimum number of patients((5.78%) belonged to the age group of 72-90 years . The number of patients in the age group of 18-36 years were 19.23% and those between 54-72 years of age were 36.53%.

Sex
Table :- 2

	Frequency	Percent	Valid Percent	Cumulative Percent
f	10	19.2	19.2	19.2
m	42	80.8	80.8	100.0
Total	52	100.0	100.0	

As per the table above shows the number of patients included in the study and their sex ratio. It shows that the maximum number of patients (80.8%) are male and the minimum number of patients (19.2%) are females

Literacy
Table :- 3

	Frequency	Percent	Valid Percent	Cumulative Percent
no	4	7.7	7.7	7.7
yes	48	92.3	92.3	100.0
Total	52	100.0	100.0	

As per the table above shows the number of patients included in the study and their literacy ratio. It shows that the maximum number of patients(92.3%) are literate and the minimum number of patients(7.7%) are illiterate .

Profession
Table:-4

	Frequency	Percent	Valid Percent	Cumulative Percent
Driver	1	1.9	1.9	1.9
farmer	3	5.8	5.8	7.7 25.0 50.0 94.2
housewife	9	17.3	17.3	100.0
retired	13	25.0	25.0	
service	23	44.2	44.2	
student	3	5.8	5.8	
Total	52	100.0	100.0	

As per the table above shows the number of patient include in the study and their profession. It shows that the maximum number of patients(44.2%) are doing service and the minimum number of patients(1.9%) are drivers. The number of patients with other profession are farmers(5.8%), housewife(17.3%) , retired(25%), student(5.8%).

Area
Table:-5

	Frequency	Percent	Valid Percent	Cumulative Percent
Rural	8	15.4	15.4	15.4
Urban	44	84.6	84.6	100.0
Total	52	100.0	100.0	

As per the table above shows the number of patient included in the study and the area in which they are living (urban/rural). It shows that the maximum number of patients (84.6%) are living in urban area and the minimum number of patients(15.4%) are from rural area

Other Disease History
Table:-6

	Frequency	Percent	Valid Percent	Cumulative Percent
A-V fistula	1	1.9	1.9	1.9 25.0 57.7 59.6
Diabetes	12	23.1	23.1	100.0
HTN	17	32.7	32.7	
HTN, Diabetes	1	1.9	1.9	
no	21	40.4	40.4	
total	52	100.0	100.0	

The above table shows that the patients included in the study is having a pervious history of certain disease such as diabetes, hypertension (HTN) or both combined . the cumulative frequency of the patients suffering from certain disease is 59.6% and the patients having no history of any disease is 40.4% . hence it determines that the people having history of diabetes or HTN are at a greater risk of developing chronic kidney disease .

Economic Burden
Table:-7

Economic Burden * Tx Continuation Crosstabulation				
	Tx Continuation			
Economic Burden		Yes	No	Total
	Yes	2	10	12
	No	34	6	40
	Total	36	16	52
Yates' chi-square = 17.15, df = 1, p = 0.00003447				

The above table shows the cross-tabulation of economic burden * treatment (Tx) continuation. The table indicates that there were 12 patients who were having economic burden out of them 10 discontinued it because of economic burden and the other 40 patients who were not having economic burden out of them only 6 discontinued because of other serious health issues or some social problems . Here the p value is 0.00003447 (highly significant) and the Yates chi square is 17.15

DISCUSSION :

In our study, we found that the incidence of Chronic Kidney Disease in the age group of 36-54yrs is maximum(38.46%) and Globally as per other researches it concludes that the prevalence of CKD increases with age (6) .We found that the patients having the etiology of Diabetes or HTN are more prone to develop CKD.In India the prevalence of hypertensive and diabetes is much more; in western countries, diabetes and hypertension accounts for over 2/3rd cases of CKD.Research data, prevalence of diabetes in Indian adult population has risen to 7.1% and in urban population the prevalence is as high as 28% .Likewise the reported prevalence of HTN in the adult population today is 17% (8). There was much more difference in the sex ratio of male(80.8%) female(19.2%) developing CKD. Globally the prevalence of disease is more in males (9). The patients suffering from CKD hemodialysis as the treatment modality which bridges the duration for renal transplant and decrease in the mortality rate in patients . Average cost of dialysis in Indian is Rs 12000 -Rs15000 per month. In the centre the cost of self paid dialysis is Rs 15000 - Rs 20000 per month (including consultation fees, injections & drugs, transport, loss of wages etc) and the average family income of patients at Dhiraj hospital centre is Rs 18000 - Rs 20000 per month.

In some families there is only a single earning member and there is also loss of wages because of hemodialysis being done twice a week resulting in withdrawal of treatment; as per statistics 10 out of 12 self paying patients withdrawn the treatment due to economic burden and 34 out of 40 patients continued the treatment and the reason of withdrawal for the 4 patients is death and the remaining 2 due to social problems ; though the people suffering from CKD are from urban (84.6%) and literacy rate is (92.3%).The cost associated with treatment of the CKD population are largely due to higher rates and duration of comorbidity-driven hospitalisations.. Government support by spending Rs2300 for a single dialysis and this affects the economy of the nation directly; Instead the nephropathies (2/3rd) related to HTN and diabetes can be preventable by early screening and treatment among the patients which will prevent the development of CKD and will also result in the decrease of expenses to the patients, families and the government.

CONCLUSION:

From the above study we concluded that hemodialysis gives financial burden to the family which is a major cause of discontinuation of treatment & leading to death.In our study majority are male patients who are also single earning member in family. Awareness of preventive aspects of CKD can decrease the prevalence & socioeconomic burden of CKD to family & nation.

SUMMARY:

The growing prevalence and progression of chronic kidney disease (CKD) raises the concern about our capacity to manage its economic burden to patients, caregivers and society.(5)

Disease can be prevented by early detection and screening of the patients suffering from HTN and diabetes resulting in decreased prevalence of CKD which results in decreased expense to the government and the patients .

After seeing the correlations of economic burden and treatment continuation , it is evident that the people who are supposed to self pay for their treatment are discontinuing for their treatment because of the economic burden and the people who are being helped by the government are continuing their treatment .

other positive correlation with our study are :-Sex ratio, Area, Other disease history other negative correlation with our study are:- Literacy, Profession Although these correlation between economic burden and the treatment continuation can be relied upon because they are statistically significant

Ethical clearance- Taken from SUMANDEEP VIDHYAPEETH INSTITUTIONAL ETHICAL COMMITTEE

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Conflict of Interest - NIL

REFERENCES

1. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980–2015: a systematic analysis for the Global Burden of Disease Study 2015; GBD 2015 Mortality and Causes of Death Collaborators, Wang H., Naghavi M., Allen C., Barber R.M., Carter A., Casey D.C., (...), Zuhlke L.J. (2016) The Lancet, 388 (10053) , pp. 1459-1544.
2. Coresh J, Selvin E, Stevens LA, Manzi J, Kusek JW, Eggers P, Van Lente F, Levey ; Prevalence of chronic kidney disease in the United States;ASJAMA. 2007 Nov 7; 298(17): 2038-47.
3. Jha V, Modi G. Uncovering the rising kidney failure deaths in India. Lancet Glob Health. 2017 Jan 1;5(1):e14–5.
4. Liyanage T, Ninomiya T, Jha V, Neal B, Patrice HM, Okpechi I, et al. Worldwide access to treatment for end-stage kidney disease: a systematic review. Lancet Lond Engl. 2015 May 16;385(9981):1975–82.
5. M. Tonelli and M. Riella; Chronic kidney disease and the aging population; Indian J Nephrol. 2014 mar-apr; 24(2): 71-74
6. Nathan R.hill, Samuel T. Fatoba and F.D.Richard Hobbs; Global prevalence of Chronic Kidney Disease- A Systematic Review and Meta-Analysis; 2016; 11(7): e0158765
7. Udani S, Lazich I, Bakris GL; Epidemiology of hypertensive kidney disease ;et al. Nat rev nephrol. 2011; dog 10.1038/nrneph.2010.154.
8. P.P. Varma; Prevalance of Chronic kidney Disease in India - Where are we Heading ?; Indian J Nephrol. 2015 May- Jun; 25(3): 133-135.
9. Kunitoshi Iseki ; Gender difference in Chronic kidney disease; Kidney International(2008) 74,415-417. doi: 10.1038/ki.2008.261
10. Virginia wang , Helene vile, Mathew L. Maciejewski , L. Ebony Boulware ;The economic burden of chronic kidney disease and end stage renal disease; seminars in Nephrology; J.9(2016), V.36, P. 319-330.