A Study Of 80 Cases Of Chronic Kidney Diseases Requiring Maintenance Hemodialysis

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Abstract—

Objectives:

Chronic Kidney Disease(CKD), with its high prevalence, morbidity and mortality, is an important public health

problem. With <3% of land mass, India hosts 17% of the Earth's population. Large numbers

of patients below the poverty line, low gross domestic product, and low monetary allocations

for health care have led to suboptimal outcomes. The Sheth V.S.General and Sheth C.M.

Hospital, Smt. N.H.L Municipal Medical College, Ahmedabad, India is a tertiary referral centre having all Specialty and Super-specialty setup, like Nephrology department for the care of CKD patients. In view of the demographics of the disease in an urban environment the present study was carried out.

Material and Method:

The present observational study of 80 CKD cases, who were advised Maintenance Hemodialysis by Nephrologists, was carried out from a period of April 2019 to March 2020. The study protocol was approved by the institutional review and the following article is solely based on the computer-based data registered.

Results:

The present study showed that the patients were largely male (71.25%), with the mean age of 52.8 years. 15% of patients were lost due to attrition. Due to complications of CKD, 8 (11.76%) patients died. Diabetic nephropathy (36.25%) figured as the major cause of CKD.

Conclusion:

Like other developing countries, India has unique situations and challenges that influence early diagnosis and management of CKD. Facilities and expertise available in different parts of the country are unequally distributed. Prevention and early detection of CKD mandate involvement of physicians at all levels. Most patients with CKD can be managed by their primary physicians with timely nephrology referrals.

Welcome initiatives, such as governmental provision of affordable and easily accessible RRT (where available), drastic reduction in commercial transplantation, and increasing deceased donor transplants, are improving care of patients with ESRD.

Keywords: CKD, Hemodialysis, Hypertension, Diabetes

INTRODUCTION

CKD, with its high prevalence, morbidity and mortality, is an important public health problem. With <3% of land mass, India hosts 17% of the Earth's population. Large numbers of patients below the poverty line, low gross domestic product, and low monetary allocations for health care have led to suboptimal outcomes. Moreover, CKD and other noncommunicable diseases have often been ignored in the face of persistent challenges from and competition for resources for communicable diseases and high infant and maternal mortality [1].

In western countries, diabetes and hypertension account for over 2/3rd of the cases of CKD.[2] In India too, diabetes and hypertension today account for 40–60% cases of CKD.[3] As per recent Indian Council of Medical Research data, prevalence of diabetes in Indian adult population has risen to 7.1%, (varying from 5.8% in Jharkhand to 13.5% in Chandigarh) and in urban population (over the age of 40 years) the prevalence is as high as 28%.[4,5] Likewise the reported prevalence of hypertension in the adult population today is 17% (14.8% from rural and 21.4% from urban belt). A similar prevalence of 17.4% has been reported by Panesar *et al*. (in the age group of 20–59 years) even from slum-resettlement colony of Delhi.[6,7] With rising prevalence of these diseases in India, prevalence of CKD is expected to rise, and obviously this is the key target population to address.

Because of challenges in access to care, over 50% of patients with advanced CKD are first seen when the eGFR is <15 ml/min per 1.73 m^2 [8]. This sobering number highlights the need for robust screening programs for those at risk for CKD. The reported prevalence of CKD in different regions ranges from <1% to 13%, and recently, data from the International Society of Nephrology's Kidney Disease Data Center Study reported a prevalence of 17% [9]. The etiology of

CKD varies considerably throughout India. Parts of the states of Andhra Pradesh, Odisha, and Goa have high levels of CKD of unknown etiology (CKDu), which is a chronic interstitial nephropathy with insidious onset and slow progression [10].

A. MATERIAL AND METHOD

The present study is purely computerized data analysis of 80 cases of CKD in a time period from April 2019 to March 2020.This is a descriptive, cross-sectional, observational study was carried out at Casualty, Sheth VS General and Sheth C.M. hospital, Smt. NHL Municipal Medical College, Ahmedabad, Gujarat, a leading tertiary health care center in western region of India.

This hospital receives patients from almost all regions of Gujarat and other western states of India.

Patients who were known cases of CKD (as per KDOQI criteria as well as those newly diagnosed with CKD (follow up of ≥3 months was taken) were included in the initial screening. eGFR was calculated using the CKD-EPI (2009) equation and patients were categorized according to the KDIGO guidelines. Patients fulfilling the inclusion criteria were then further investigated. Demographic details and clinical histories were noted.

Studies of Valson et al andGutierrez et al have been compared with the present study.

a) ***Inclusion criteria****:*

1. Age > 18 yrs
2. Both Males and Females
3. Patients diagnosed with CKD according to KDOQI guidelines
4. Patients with eGFR < 60 ml/min/1.73m^2 i.e. CKD stage 3, 4 and 5

B. OBSERVATIONS AND DISCUSSION

The following observations were made from the study of 80 (**Table 3**) patients of CKD-requiring hemodialysis as advised by the nephrologists at our Institution.

a) ***Table 1 :Demographic Profile of the patients in the present study****:*

Gender (%)	Cases
Male	57 (71.25%)
Female	23 (28.75%)
Age (Years)	
Mean+ SD	52.8+ 13.01
Range	25-84

80 patients of CKD were included of which 57 (71.25%) were males and the rest females. The mean age was 52.8 with the youngest and the oldest being 25 and 84 respectively. **(Table 1)**

b) ***Table 2: Comparison of Demographic profile with Other Studies***

Study	Mean Age	Gender
Present Study	52.8	Male
Gutierrez et al (n = 80)	59.7	Male
Valson et al (n = 710)	46.6	Male

Most of the studies (**Table 2**) had the mean age within 40-60 years and males being most common.

c) ***Table 3: Sample of 80 Patients undergoing Maintenance Hemodialysis from April 2019 to March 20 at our Institution***

Month	Gender		Death		Attrition	
	Male	Female	Male	Female	Male	Female
April 2019	57	23	0	0	0	0
May 2019	57	23	0	0	0	0
June 2019	57	23	0	0	0	0
July 2019	57	23	1	0	0	0
August 2019	56	23	0	0	2	0
September 2019	54	23	0	1	1	2
October 2019	53	20	1	1	1	0
November 2019	51	19	0	0	3	1
December 2019	48	18	2	0	0	0
January 2020	46	18	0	0	2	0
February 2020	44	18	0	0	0	0
March 2020	44	18	1	1	0	0
Total	43	17	5	3	9	3

In the present study, a sample of total 80 patients was followed. Males consisted of 71.25% of the total cases. Due to attrition (loss of follow up or renal transplant) – 15% patients were lost and due to complications of CKD out of 60 patients followed up till end- 8 deaths (11.76%)occurred.

d) ***Table 4: Etiology of CKD in our study***

Etiology	Cases- Total 80 (Attrition- 12)	
	Alive	Death
Diabetic Nephropathy	29 (36.25 %)	4 (5 %)
Hypertension	22 (27.5 %)	3 (3.75 %)
Tubulointerstitial Disease	3 (3.75 %)	0
Glomerulonephritis	4 (5.00 %)	1(1.25 %)
ADPKD	0	0
Autoimmune Diseases	2 (2.5%)	0
Others	0	0
Not available due to Attrition	12 (15%)	

Diabetic nephropathy (36.25%) figured as the major cause of CKD.(**Table 4**). Hypertension consisted of (27.5 %), Chronic Glomerulonephritis (5.00%) and Autoimmune(2.5%), and 3 cases of Chronic Tubulointerstitial Disease (3.75%) were there.

e) ***Table 5 : Comparison of etiology of CKD in various studies***

Etiology	Present Study (80)	Gutierrez et al (80)	Valson et al (710)
Diabetes	43.33%	23%	31.1%
Hypertension	90%	18%	NA
Tubulointerstitial Disease	1.66%	0	1.7%
Glomerulonephritis	3.33%	34%	3.4%
ADPKD	0	3%	1%
Autoimmune	1.66%	0	2.3%
Others	0	13%	60.7%

Most common etiology in studies of Valson et al was Diabetes while Gutierrez et al had predominantly Glomerulonephritis (34%) as the leading etiology.

Future Solutions

The challenge of patient care seems daunting. Education regarding diet and smoking avoidance, improved antenatal care, and community-level screening for non communicable diseases, like diabetes and hypertension, at the primary health care level must be universally implemented. Awareness regarding CKD must increase. CKD prevention and delaying progression by timely interventions are important public health objectives.

Success necessitates the united effort of the government, nongovernmental organizations, philanthropists, and community members.

The Indian Society of Nephrology has made education modules for community physicians with helpful algorithms regarding CKD management and timely nephrology referral. It is hoped that this translates into most patients with CKD being managed appropriately by primary care and family physicians, with appropriate referral to nephrologists when needed. Subsequent follow-up of these patients should continue to be under their primary care physician, with only periodic visits to the nephrologists, until advanced stages of CKD are reached and advanced care, like RRT, becomes necessary. The International Society of Nephrology has funded screening programs. The CKD core group conducts research into its etiology, and this should translate into reducing incidence.

C. *CONCLUSION:*

Like other developing countries, India has unique situations and challenges that influence early diagnosis and management of CKD. Facilities and expertise available in different parts of the country are unequally distributed. Prevention and early detection of CKD mandate involvement of physicians at all levels. Most patients with CKD can be managed by their primary physicians with timely nephrology referrals. The Indian Society of Nephrology modules should increase competence and lead to uniformity of delivered care. Welcome initiatives, such as governmental provision of affordable and easily accessible RRT (where available), drastic reduction in commercial transplantation, and increasing deceased donor transplants, are improving care of patients with End Stage Renal Disease (ESRD).

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III. FOOTNOTES:

a) *Source of Support: Nil.*

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