

CHRISTIAN MEDICAL JOURNAL OF INDIA

CMJI



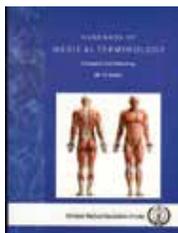
A Quarterly Journal of the Christian Medical Association of India

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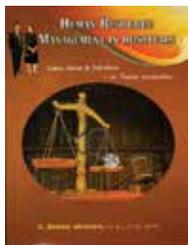
Chronic Kidney Disease

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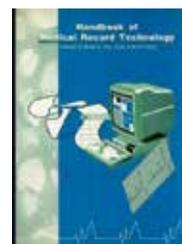
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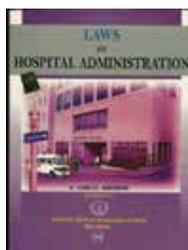
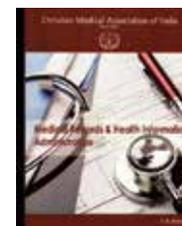
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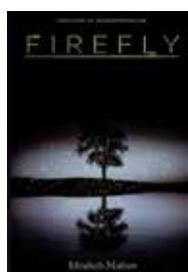


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Firefly, published by CMAI is an ode written by a mother, Mrs. Elizabeth Mathew, one of our staff in honour of her medical missionary son Dr. Shane Sam Mathew, who reached the eternal abode abruptly at the age of 25 in a fire that engulfed the staff quarters in Liberia in the year 2017. Dr. Shane was her first born and only son. The devastating experience of suddenly losing her child in a foreign land made her re-think about her faith, priorities and the purpose of life. Despite all the sorrows, through this book, she is trying to draw God's strength and grace and living with the hope that death is only a temporary separation and one day, she will meet her son in eternity. This book will challenge the young, console the grieved and uplift many-a-soul to understand and accept the sovereignty of the Almighty God. Rs 300

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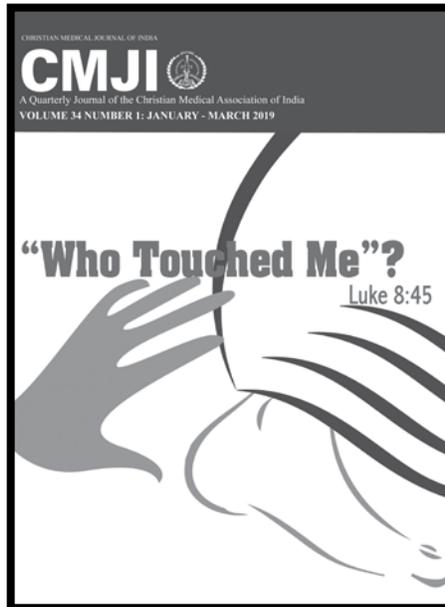
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LETTERS TO THE EDITOR

Thank you so much, That was a real thought provoking issue on 'Who Touched Me!'

For quite a few years now we practice gratefulness time at the end of the day, before our family prayers. A time to reflect on what we have received and did not receive that day and be thankful.



I guess it is also important to identify how the Lord is touching us each day in our big and small struggles and efforts!

Mrs Jane Albrecht, Indiana, USA

The cover page touched me. The hem of His garment is a wide study and I did personal study and was in awe!

Wonderful! Amid the political madness God raised people for Himself in our India! Is there any way we can subscribe or support?

Mrs Beulah Milton Paulraj, Richmond, Virginia, USA

LETTERS / ARTICLES FOR CMJI

We invite your views and opinions to make the CMJI interactive and vibrant. As you go through this and each issue of CMJI, we would like to know what comes to your mind. Is it provoking your thoughts? The next issue is on "Leadership". Please share your thoughts with us. This may help someone else in the network and would definitely guide us in the editorial team. E-mail your responses to: cmai@cmai.org

Guidelines for Contributors

SPECIAL ARTICLES

CMAI welcomes original articles on any topic relevant to CMAI membership - no plagiarism please.

- Articles must be not more than 1500 words.
- All articles must preferably be submitted in soft copy format. The soft copy can be sent by e-mail; alternatively it can be sent in a CD by post. Authors may please mention the source of all references: for e.g. in case of journals: Binswanger, Hans and Shaidur Khandker (1995), 'The Impact of Formal Finance on the Rural Economy in India', Journal of Development Studies, 32(2), December. pp 234-62 and in case of Books; Rutherford, Stuart (1997): 'Informal Financial Services in Dhaka's Slums' Jeffrey Wood and Ifftah Sharif (eds), Who Needs Credit? Poverty and Finance in Bangladesh, Dhaka University Press, Dhaka.

- Articles submitted to CMAI should not have been simultaneously submitted to any other newspaper, journal or website for publication.
- Every effort is taken to process received articles at the earliest and these may be included in an issue where they are relevant.
- Articles accepted for publication can take up to six to eight months from the date of acceptance to appear in the CMJI. However, every effort is made to ensure early publication.
- The decision of the Editor is final and binding.

LETTERS

- Readers of CMJI are encouraged to send comments and suggestions (300-400 words) on published articles for the 'Letters to the Editor' column. All letters should have the writer's full name and postal address.

GENERAL GUIDELINES

- Authors are requested to provide full details for correspondence: postal and e-mail address and daytime phone numbers.
- Authors are requested to send the article in Microsoft Word format. Authors are encouraged to use UK English spellings.
- Contributors are requested to send articles that are complete in every respect, including references, as this facilitates quicker processing.
- All submissions will be acknowledged immediately on receipt with a reference number. Please quote this number when making enquiries.

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CKD: An Epidemic that Causes Deep Concern

It's been a year since we brought out an issue of the CMJI focusing on Hypertension. Now we bring you back to a health problem which is escalating rapidly - Chronic Kidney Disease (CKD).

This journal brings to you the overview of the illness, the disease burden, various treatment options and of course (my favourite) personal stories. Personal stories, though very hard on the individuals going through the illness, is where we see textbook and real-life merge. It has the ability to soften our hard, professional exteriors to touch base with the cruelty of reality and also see the hope with which we all live.

As someone said, if the singular is called Varghose, we have three articles by Varghese(s); is it a mishap or a conspiracy! Every article in this journal is written by individuals dealing with the pain of CKD - professionally or personally.

The article on diet for CKD is one tiny part of a little book by Dr S Pandya, written in a simple manner for anyone to read and understand the different aspects of the disease.

There is another concept which we have not touched on called Chronic Kidney Disease of Unknown origin (CKDu) which we see in many countries now, including our own. CKDu – or CKD in non-hypertensive, non-diabetics is now very common in Andhra Pradesh and Odisha. Those affected are mostly men between 25 and 60 years; farmers and other rural villagers. Various theories are doing the rounds on the possible causes - use of pesticides and herbicides, heavy metals in groundwater, contaminated alcohol, heat and dehydration, genetic predisposition.... or a combination of these. Research studies are on and we hope that we'll find out what is driving the epidemic.

Let us put our hearts and minds together as we deal with this surging problem. Pray for those suffering from CKD and send in your thoughts on how we can all respond.

God bless



Ms Mercy John



Ms Mercy John

THE WINE STORY AT CANA

St John 2: 1-11 narrates this interesting and familiar story of Jesus turning water into wine. Here's a short summary for everyone who reads this article.

Jesus, his disciples and mother Mary attended a wedding at Cana, a village in Galilee. Customarily, Jewish weddings have wine served during the feast. When the wine ran out, Mary turned to Jesus and said: "They have no more wine."

Jesus said, "Mother, Why do you involve me? My time has not yet come."

She went ahead anyway, telling the servants, "Whatever he tells you, do it."

Six stoneware water pots were there, used by the Jews for ritual washings. Each held twenty to thirty gallons. Jesus ordered the servants, "Fill the pots with water." And they filled them to the brim.

"Now fill your pitchers and take them to the host," Jesus said, and they did.

When the host tasted the water that had become wine (he didn't know what had just happened but the servants, of course, knew), he called out to the bridegroom, "Everybody I know begins with their finest wines and after the guests have had their fill



Dr Sudhir Joseph

brings in the cheap stuff. But you've saved the best till now!"

This act in Cana of Galilee was the first sign Jesus gave, the first glimpse of His glory. And his disciples believed in him.

As we meditate on this story, five lessons emerge for us to use in our daily lives.

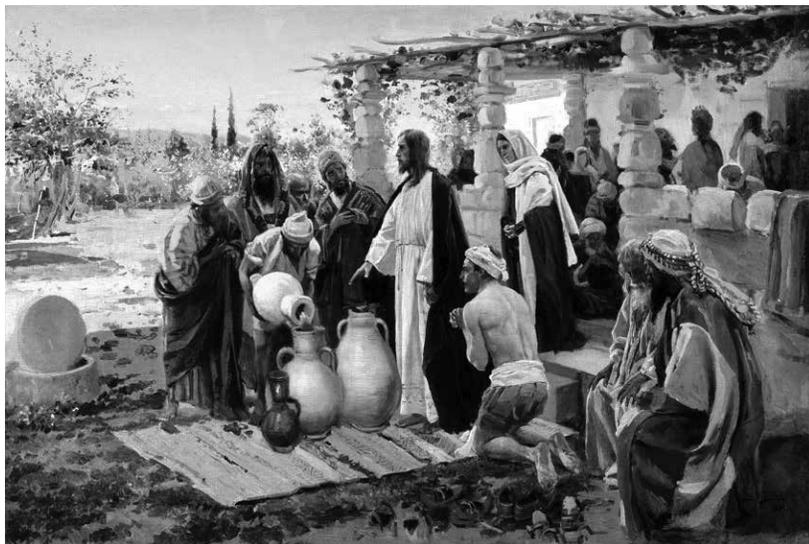
1. Response to Distress

It is so natural that Mary turned to the one she knew, on behalf of the host. Mary was not disappointed by Jesus' indifference. She still believed that He would help in some way. Since Jesus hadn't done any miracles till then, she wouldn't have expected Him to use His divine powers. But she knew that He would do something since she asked for it. In fact, she commanded the servants to do as He instructed. When we have an emergency or distress, we may immediately turn to our loved ones, then friends, relatives, colleagues, and people in power who will be of assistance to us. Our mind will be racing in all worldly ways to find a solution or to wriggle out of the situation we are in.

How do we respond to distress? We too must turn to the one person who will give us a solution, an answer or a way out. That is Jesus. Just follow His instructions.

2. Faith:

Mary told the servants to do what He instructed. She put her faith in Him. When Jesus



asked the servants to fill the jars with plain water, they did not raise their eyebrows in doubt. They did exactly what He told them to do. Absolute faith. Again remember that He hadn't started His miracle ministry. He was considered as a rabbi, that's all. Towards the end of this passage, it is mentioned that the witnesses had put faith in Him after the miracle was over. When our mind is turbulent with the waves of distress, do we put our absolute faith in Him and Him alone, even before the miracles happen?

3. Direction

The miracle of Cana did not happen out of the blue. There was a process that had to happen before that. Jesus gave specific instructions to the servants. "Fill the jars with water up to the brim." And the servants did exactly as He wanted. We must not just hope for miracles. Instead we have to go through a process based on Jesus' directions. There are guidelines to be followed. We have to get inspiration from the Word and through listening to Him in absolute silence. Wait for His time to act.

4. Provisions

Here we see that He used the earthen jars, He used

water and He gave the instructions to use these available provisions and the 'water blushed'.

We cannot sit back and say that the Lord will provide. He never leaves us high and dry without giving us the goodies to make things happen.

5. Maturity

Unless the wine is mature, it doesn't give its taste. The wine He offered was matured. It tasted better than that what was used before, testified the host. When we are transformed from a tasteless life to a spirit-filled life, our quality must be the best. Without God at the centre, our lives do not have its own worth. We need much maturity to be a drink offering to the Lord.

The wine story of Cana has many more lessons inherent in it. Every time we read, it gives a freshness and flavour that we have never tasted before. That is the miracle of the Word. It is inspiring and we are here to take it to the brim. May God bless and transform us to be better vessels and the best wine for His glory.

Dr. Sudhir Joseph, Director of St. Stephen's Hospital, New Delhi. He is also the former President of CMAI.



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AN OVERVIEW OF CHRONIC KIDNEY DISEASE

With increasing prevalence of Chronic kidney disease (CKD) worldwide, physicians and other health care professionals at all levels must necessarily be involved in their care. We would like to address the topic by briefly answering a few pertinent questions.

What is Chronic Kidney Disease?

Before discussing CKD *per se*, we need to understand how renal function is estimated.

Glomerular filtration rate (GFR) is the term used for renal function. The ideal methods are by using inulin, iothalamate and other radioisotopic clearances, all of which are costly and not easily available. Hence, for all practical purposes, the serum creatinine is commonly used for calculating creatinine clearance which is then used to estimate the GFR. There are several formulae used for estimating the GFR from serum creatinine. Probably the best available formula is the CKD-EPI" equation which requires the patient's details to be either

entered online into a GFR calculator or a mobile phone application. A slightly less accurate but easier formula is the Cockcroft and Gault equation. This uses age, weight and creatinine for estimating creatinine clearance in the following formula: The creatinine clearance is lower in women by 15%. Therefore, the above value is multiplied by 0.85 in women. 15% of creatinine clearance is done by secretion into the tubules, i.e. the GFR is 15% lower than creatinine clearance and the estimated GFR (eGFR) is

$$\text{Creatinine clearance} = \frac{(140 - \text{Age}) \times \text{Weight}}{\text{Sr Creatinine} \times 72}$$

obtained by multiplying the creatinine clearance by 0.85.

The need to estimate the creatinine clearance rather than guessing the renal function by merely looking at the serum creatinine value cannot be overemphasized. For example, if we were to compare two patients' clinical



Dr. Santosh Varughese



Dr. Georgi Abraham

status. A 70-year-old woman, weighing 45kg and serum creatinine 1.5mg/dl when compared to a 25-year-old man, weighing 85kg and serum creatinine 5.32mg/dl, it is likely that the young man appears to have worse kidney function compared to the older woman. However, the eGFR values are 18.06 ml/min and 21.25 ml/min respectively, illustrating how appearances can be deceiving and that the eGFR must be estimated in all patients. The estimation of e-GFR has suddenly alerted medical practitioners all over the world to the presence of mild CKD in their midst. However, it must be remembered that the equations have not been validated for our population and they are not valid for extremes of age (<18 years and >80 years), obesity or severe malnutrition, vegan and low protein diets, paraplegics / amputees, muscle wasting conditions and rapidly changing renal function like acute kidney injury.

Chronic Kidney Failure / Disease

Unlike other medical conditions e.g. Chronic Obstructive Pulmonary Disease, **chronic** in CKD does not necessarily mean "of a known long duration", rather it means that "irreversible" kidney damage has occurred. All over the world, the term used for long-standing kidney damage was "chronic renal failure (CRF)" until the National Kidney Foundation, USA introduced the term "CKD" in 2003. This served two purposes: a) the patient's comprehension of the term CRF would depend on whether the emphasis was on *chronic* or on *failure*, i.e. patients would sometimes panic even with a relatively preserved kidney function on hearing the word "failure". The classification of CKD (see below) keeps the term "failure" for the last stage of disease. Also, CKD incorporate all **CHRONIC** kidney disease not amounting to CRF under one umbrella because of their potential for causing kidney failure.

For each patient needing Renal Replacement Therapy

(RRT) i.e. dialysis or transplantation, it is estimated that over 2000 patients have a lesser degree of renal dysfunction. CKD is associated with high risk of death from cardiovascular disease and mortality in patients on dialysis over a 1000 fold higher than the general population. The focus in recent years has been to optimize care during the early stages of CKD before RRT requirement.

Chronic Kidney Disease is defined as kidney damage for ≥ 3 months, defined by structural or functional abnormalities of the kidney, with or without decreased GFR, manifest by either pathologic abnormalities, or markers of kidney damage, such as abnormalities of the blood or urine, or in imaging tests or $GFR < 60 \text{ mL/min/1.73 m}^2$ for ≥ 3 months with or without kidney damage.

In the above category of “structural or functional abnormalities of the kidney”, the following are a few examples to be considered: proteinuria (including microalbuminuria, or moderately elevated albuminuria as it is now called), hematuria, casts (especially with cellular elements), radiological changes including multiple renal cysts, extensive renal scarring, very small kidneys, solitary kidney and pathological abnormalities on kidney biopsy. Though the risks may not be very high for progression and different for

considered to have CKD.

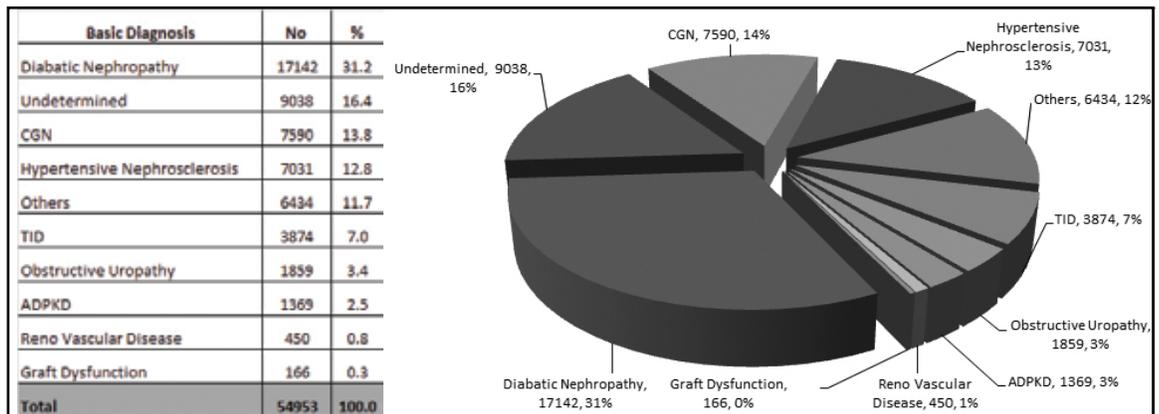
Chronic Kidney Disease is divided into 5 stages on basis of renal function.

Who are at risk for Chronic Kidney Disease?

The etiological classification of CKD is given below:

- **Diabetic Kidney Disease**
- **Glomerular diseases** (autoimmune diseases, systemic infections, drugs, neoplasia)
- **Vascular diseases** (renal arterial disease, **hypertension**, microangiopathy)
- **Tubulointerstitial diseases** (urinary tract infection, stones, obstruction, drug toxicity)
- **Cystic diseases** (polycystic kidney disease)
- **Diseases in the transplant** (Allograft nephropathy, drug toxicity, recurrent diseases, transplant glomerulopathy)

According to the CKD registry of India report 2010 (n=54,953) diabetic nephropathy (31.2%) and



Stage	Description	GFR (ml/min/1.73m2)
1	Kidney damage with normal or increased GFR	≥ 90
2	Kidney damage with mildly decreased GFR	89 - 60
3A	Mild to moderate decrease in GFR	59 - 45
3B	Moderate decrease in GFR	45 - 60
4	Severe decrease in GFR	30 – 15
5	Kidney failure	≤ 15 or dialysis

hypertension (12.8%) are two common etiologies of CKD in India.

Rajapurkar M, et al. Indian CKD Registry BMC Nephrol. 2012; 13: 10.

Both diabetes and hypertension are increasing in India with India slated to soon become the country with the largest number of people with diabetes mellitus. With improving health, the life expectancy in India has crossed currently 65years (2011). Logic dictates that increasing life expectancy with

different etiologies, it is important to consider that if any of these persists more than 3 months, the patient must be

COVER FEATURE

increasing prevalence of diabetes and hypertension will translate into increased population of CKD patients. It is estimated that the prevalence of CKD stages 4 and 5 together is 1.6% i.e. 2.12 crores of the general population. If each such patient were to see a nephrologist once a month, he would have to see over 700 patients each day and if the patient visits once in three months, he would still have the burden of seeing nearly 250 patients a day. This clearly shows the imperative role of primary care and family physicians in the care of patients with even advanced CKD.

How does Chronic Kidney Disease present clinically? Who should be screened?

Unfortunately, in early stages, CKD is often silent with possible finding of asymptomatic urinary abnormalities like minimal proteinuria or microscopichematuria. These are often missed. Data from CMC Vellore showed that CKD stage 5 (G5) is the initial presentation of renal illness in 54.4% of patients with CKD G5. Other presentations are nephritic or nephrotic syndrome, hypertension, unexplained anemia, edema and uremic emergencies. In some, an incidental finding of elevated serum creatinine is seen during an annual occupational health review or similar occasion. Young hypertensives (age < 40 years) must be specifically evaluated to rule out secondary hypertension of which renal parenchymal disease is a common etiology.

Once GFR drops below 25%, it is likely to be progressive unless intervened making early detection imperative to prevent further injury & progressive loss of renal function.

A detailed history - with review of systems, existence of chronic diseases (diabetes mellitus, hypertension, congestive heart failure, cirrhosis), medication review (including indigenous medication and non-steroidal anti-inflammatory drugs (NSAIDs), accurate past and family history of kidney disease. History of polyuria, nocturia and frothing of urine must be asked for in early disease. In advanced cases, there may be overt symptoms of edema, shortness of breath, fatigue, generalized itching, decreased appetite, nausea and vomiting.

Accurate blood pressure measurement is often the most crucial part of examination. Pallor is present in a third of patients in CKD G5. Abdominal examination is done to look for palpable kidneys and renal arterial bruit. Laboratory testing and imaging are important for evaluation of kidney disease. In overtly uremic individuals, uremic fetor, asterixis and pericardial rub may be present as is edema and respiratory crackles in those with fluid overload.

Especially in diabetics, morning sample of urine should be examined for microalbuminuria (or moderately elevated albuminuria as it is now called). Ultrasonography for kidney size, echogenicity, scars and urinary tract dilatation is a useful imaging technique.

Screening is preferable to be done in **all** patients at least once but is mandatory for the following patients: diabetics, hypertensives, patients with cardiovascular disease, history of proteinuria / hematuria, chronic NSAIDs/ indigenous medication intake, calculi in the urinary system, anemia of unknown etiology, those with relatives with CKD, those with history of nephrectomy, etc. The goal of screening is early diagnosis, identification of potentially reversible causes and prevention /slowing down of progression of CKD and treatment of complications / comorbidities. Following the initial screening, repeated screening at periodic intervals may be necessary depending on underlying risk profile. In addition to the history and examination as listed above, screening involves GFR estimation from serum creatinine, urinalysis for albumin and blood using a dipstick. If not feasible in all, at least in those testing positive for blood, microscopy must be done to look for red blood cells (RBCs) and RBC casts. In those with albuminuria, 24 hour urinary protein and urine protein to creatinine ratio estimation must be done. Especially

in diabetics, morning sample of urine should be examined for microalbuminuria (or moderately elevated albuminuria as it is now called). Ultrasonography for kidney size, echogenicity, scars and urinary tract dilatation is a useful imaging technique.

If the patient does not meet the criteria for diagnosis of CKD, focus must be on risk factor reduction to prevent onset of CKD.

How should a patient with Chronic Kidney Disease be managed?

Progression of CKD

Minor fluctuations of GFR are commonplace and are not

necessarily indicative of progression. CKD may be said to have progressed based on one of more of the following

- a. Decline in GFR category accompanied by $\geq 25\%$ drop in eGFR from baseline
- b. Rapid progression – sustained decline in eGFR ≥ 5 ml/min/1.73 m²/year

If the decline of GFR is faster than expected, the patient warrants referral to a nephrologist for evaluation.

CKD stages	Clinical action plan
1	Plan 1 Diagnosis of CKD Treatment of comorbid conditions Slowing progression of kidney disease Reducing the risk of CVD
2	Plan 2 Plan 1 + estimating progression of CKD
3	Plan 3 Plan 2 + evaluation and treatment of complications
4	Plan 4 Plan 3 + Preparation for renal replacement therapy (RRT)
5	Plan 5 Plan 4 + RRT (if uremia present)

The factors that are associated with progression of CKD progression and thus the prognosis are: etiology of CKD, level of eGFR and albuminuria at presentation, age, sex, race/ethnicity, presence of hypertension, hyperglycemia, dyslipidemia, smoking, obesity, history of cardiovascular disease, ongoing exposure to nephrotoxic agents, etc.

Patient care at each stage of CKD

Lifestyle changes

Patients who are obese or overweight must be encouraged to lose weight and attain the ideal weight for height. Decrease of 3.67kg/m² BMI results in decrease in proteinuria by 1.3g/24 hours, decrease in systolic blood pressure and stabilization of GFR.

Regular aerobic exercise training at mild-moderate strength 20 – 60 minutes /day for 2 – 3 days / week has several beneficial effects – increasing exercise tolerance & maximal exercise capacity, improvements in glucose/ lipid metabolism, decrease in inflammation, oxidative stress & catabolism and

decrease in arterial stiffness.

Cessation of smoking must be encouraged as it increases the risk of diabetic nephropathy in diabetics and doubles the rate of progression to ESRD in those with diabetic nephropathy. Other effects of smoking are hypertension, tachycardia, decrease in GFR, etc. Smoking is a powerful predictor of microalbuminuria in hypertensive patients. The effects of smoking last for a long time and only dissipates after 5 years of complete abstinence.

Dietary advice

Salt intake must be limited to (<2 g) / day of Na⁺ (~ 5 g NaCl). In addition, consumption of processed, restaurant foods must be limited as these have high added salt content. Rule of thumb advice is to use salt for regular cooking but no further salt is to be added. Salty food like pickles, pappad, etc must be completely avoided. Salt substitutes usually contain potassium chloride and are to be avoided. Foods that contain high amounts of potassium e.g. fruits, nuts, juices, tender coconut water, etc are to be avoided. The usual fruits that are permitted are apples, papayas, guavas and pineapples.

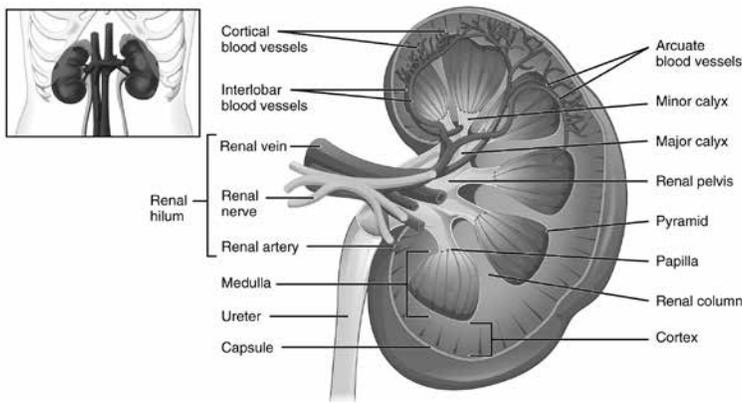
Complex carbohydrates i.e., those with a high glycemic index like wheat, unpolished rice, oats and barley are preferred to simple sugars. The average Indian protein intake is similar to what is advised for patients with CKD and therefore **no protein restriction** is usually necessary except in those who are high protein consumers. Protein eaten should be of high biological value (BV) protein and vegetable proteins may be better than animal proteins. Good sources of protein are soy protein, whey proteins, egg (white /whole), fish, lean meat and egg whites. Vegetarians may be given tofu, soyabeans, groundnuts, lentils and legumes. Red meat is rich in phosphates and is best avoided.

Blood pressure

Blood pressure targets have become controversial over the last few years. Usually, BP less than 130/90mm Hg is recommended. Angiotensin converting enzyme inhibitors (ACEi) or angiotensin receptor blockers (ARB) are drugs of choice in both diabetic and non-diabetic CKD patient with albuminuria. There should be a mandatory run-in period to look for drug intolerance causing hyperkalemia or an increase in serum creatinine more than 30% from baseline.

In addition, consumption of processed, restaurant foods must be limited as these have high added salt content. Rule of thumb advice is to use salt for regular cooking but no further salt is to be added.

COVER FEATURE



Prevention of Acute Kidney Injury (AKI)

All patients with CKD are at increased risk of AKI. Strict avoidance of nephrotoxic medication including NSAIDs must be advised. Paracetamol / Tramadol are preferred for pain relief. To prevent contrast induced nephropathy (CIN), the lowest possible dose of contrast is to be used and iso-osmolar or low-osmolar contrast media are preferred. N-Acetyl Cysteine is not useful in critically ill, hypotensive or post-operative patients and is best avoided. The risk of CIN is greatest with arterially administered contrast and therefore venous contrast administration (e.g. CT pulmonary angiogram, CT abdomen, etc) where clinically urgently needed may be done after explaining the risk. In all patients volume expansion is done with IV NS/ NaHCO₃ at a rate 1.0–1.5 ml/kg/h for 3–12 hours before & 6–12 hours after contrast-media exposure to target urine flow rate - at least 150 ml/hour. Serum creatinine is monitored 48 to 96 hrs after contrast exposure.

Sick Day Rules

Patients in CKD stages 3 to 5 are advised to STOP potentially nephrotoxic and renally excreted drugs when there is any serious illness or dehydration due to severe diarrhoea /vomiting and there is an increased risk of AKI and other complications, Some of the drugs that are

stopped include: ACE inhibitors ARBs, aldosterone inhibitors, diuretics, metformin, lithium, digoxin, etc.

Referral to Nephrology

The initial referral of patients should be in conditions of rapidly progressive renal failure, significant albuminuria/proteinuria, sustained and unexplained microscopic hematuria (with or without casts), persistent electrolyte abnormality, recurrent or extensive nephrolithiasis, hereditary kidney disease, etc. When needed, a kidney biopsy may be needed to determine the etiology of CKD and give definitive treatment.

The detailed approach to management of a patient with CKD is beyond the scope of this article and treatment of complications and co-morbidities should ideally be initiated by the nephrologist. Patients with CKD are to be managed under a combined care plan of the nephrologist and the primary physician. It is ideal to visit the nephrologist annually while following up more frequently with his When the CKD progresses to eGFR < 30 ml/min/1.73 m² (G4-G5), patients need referral for RRT planning and multidisciplinary care for counseling, education, access, etc. Patients need to make an informed choice for determining RRT modality. Advice regarding renal transplantation must be suggested to all clinically preserved patients. Hemodialysis / peritonealdialysis are initiated when indicated depending on patient choice.

Dr Santosh Varughese, Prof & Head of Nephrology, Christian Medical College, Vellore; Dr Georgi Abraham, Prof of Medicine and Consultant Nephrologist at Madras Medical Mission, Chennai/ PIMS Pondicherry.

Rural India Mission Hospital (Estd 1970), Tumkur (Near Bangalore), Karnataka.

Wanted a committed doctor to lead healthcare clinic and activities.

Minimum qualification - MBBS / Accommodation available.

Please email CV to direct.ciit@gmail.com

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NO, NEVER ALONE

It was very hard to cope with Chronic Kidney Disease. I will briefly narrate my experiences over the last few years. I am a pastor and have had the honour of being Bishop of the JELC, Odisha. There has been a lot of hardship after the diagnosis of Kidney Disease which I will enlist, but I am not alone – my family and God are there.



Rt. Rev. Dr. Anam Chandra

The first onslaught after the diagnosis was the prescription. There were too many medicines prescribed and it was very difficult to take all those. They were very costly too. I was taking allopathic and ayurveda medicines. Then I was advised to go for dialysis. The big challenge was to find a reliable place for the procedure, relatively near home. After a tough to-and-fro run – testing in different hospitals I started on the dialysis it was painful and costly too. Not only physically, but also financially and spiritually!



Ms. Prabhasini Khosla

My wife and children and my relatives were my strength. Everybody supported me a lot. The love and efforts of my wife were immeasurable. Only faith in our Lord Jesus Christ saved me. My family members, as well as the church members, were constantly praying for me. Of course, my work was affected for months. I am now able to take care of myself and do certain things for myself.

The fear of death was one that loomed before me. But now I somehow do not have that fear. The greater fear was that there was no nephrologist nearby and there was no proper and correct advice regarding diet and medications. Whatever the doctors

The first onslaught after the diagnosis was the prescription. There were too many medicines prescribed and it was very difficult to take all those.

prescribed, I had to take without questioning.

I hope I would get better and have a healthier life, but my greatest hope is in the Lord Jesus Christ.

Challenges:

- a) The biggest problem was to face dialysis twice a week. Initially, finding a hospital or a dialysis centre, and getting started itself was a big problem. By God’s grace, ‘free dialysis’ was started in Rayagada and Koraput. However, somewhere during that period of dialysis or blood transfusion, I was infected with Hepatitis C.
- b. Another challenge was the decision to take treatment from CMC, Vellore. Reaching Vellore from Odisha, in a sick condition, was gruesome.
- c. Then we decided to have dialysis in Rayagada twice a week - Even that was too difficult for me.

Difficulties were all around, but for every problem – at the right time God provided us with help and hope through many people

Ms Prabhasini Khosla adds a daughter’s view:

In January 2017, my father started insulin for diabetes, and was referred to CMC Vellore for kidney biopsy. The result showed necrosis of the glomeruli in both the kidneys. This left us baffled, not knowing what decision was to be taken next. The hospitals were at great distances from our home – be it CMC Vellore, or Viskhapatnam, Cuttack or Bhubaneswar. All procedures were very costly and we had financial constraints too.

PERSONAL EXPERIENCE



My brothers were at Bangalore and Vellore, and it was also not easy for me to take off from my job; and to leave my children at home which affected their studies.

Being the elder child and a nurse, it was easier said than done for me to make the various decisions. It was October 2017 when my father's creatinine reached 11.7mg/dl and urea was over 100 mg/dl. His legs were swollen, he was breathless and in a confused state. His condition suddenly worsened and on the 25th night, we had to shift him to Glocal Hospital, Jeypore. We doubted when he was aspirated and thought that it would be his end. A central line was established and he was started immediately on hemodialysis. And to our amazement, he got better the next day! God gave him another life.

We went to many hospitals for treatment – which was quite harrowing. Like the drowning man catching onto straw, we thought of going to someone in Malkangiri, who was giving herbal medicine. We heard that there were some pooja ingredients mixed before administering the medicine, as a family, we decided to reject that option.

Lessons learnt: My father, being a pastor and later a Bishop, and after being a help for so many people in distress and fear, was haunted by a spirit of fear. He was eventually able to overcome it. During our desperate moments, the church congregation was our strength.

Whoever came to visit, helped us with financial assistance. Small or big, every penny counted.

Christian love was the most important strength we received from all.

Having taken a health insurance policy earlier really helped to meet some expenses.

During the treatment, many units of blood were needed for transfusion. We are grateful to many loved ones who donated blood during this period. (Tranfusion also caused dangers such as contracting Hepatitis C).

I have learnt the process and am able to guide many people during difficult treatment procedures and regarding various facilities that are available. I would strongly advise those with diabetes to control their sugars and try and avoid nephropathy.

I am very grateful to God that He has blessed my mother with so much of patience and love - as she is the primary caregiver to my father. Without the support and love of relatives and family members – we would not have come this far. We have never been alone!

Rt Rev Anam Chandra Khosla, Bishop of Jeypore Evangelical Lutheran Church, Odisha and his daughter Ms Prabhasini is pursuing M.Sc.(N) in Odisha.

UNDERSTANDING CKD AND ITS PAIN A BIT MORE

India has one of the youngest populations in the world. Unfortunately because of the non-communicable diseases prevailing this young population is going to be a diseased one. Traditionally just like any other tropical country, we have a major burden of infectious diseases (communicable diseases) like Malaria, Tuberculosis, etc. leading to mortality and morbidity. In the recent past non-communicable diseases like heart diseases, Stroke (paralysis) and kidney disease are increasingly prevalent making this young population diseased and costing man-hours for the community. A study done across India in 2007 namely SEEK (Screening and Evaluation of Early kidney disease) has put the average prevalence of Chronic Kidney disease (CKD) at more than 17% across the country. This means that out of every 100 people 17 have kidney disease. The recent CKD screening done by Care For Your Kidney Foundation (CFYKF) in the urban slums of Hyderabad revealed that the prevalence is around 14.8%. This is a huge burden and calls for an urgent initiative across the country. The following measures are appropriate to stop this epidemic of kidney disease.



**Dr. Rajasekara
Chakravarthi**

- A better understanding of the disease by the general population and medical community
- Increase in awareness of what CKD is and how it can be prevented
- Put programmes in place at the community level to screen for silent kidney disease
- Popularize protocols which will delay the progression of the kidney disease once picked up
- Knowledge of who is at risk for CKD and what causes kidney disease

Chronic Kidney Disease:

Structural or functional abnormalities of the kidneys

persisting for more than three months is defined as CKD. Commonly used markers of the kidney function useful for screening are Serum creatinine / eGFR and urine protein estimation. These are very simple tests done by examining blood and urine samples. Routinely done in a high-risk population they pick up the silent disease and allow interventions to be done early so that CKD doesn't progress.

Stages of CKD

Chronic kidney disease is a progressive disease and is classified into five stages depending on the level of the kidney function. Stage I (GFR more than 90ml/min) is when the kidney function is ok but there is a structural or abnormality like protein leaking in the urine. Stage II is when GFR is below 89 and above 60ml/min. Stage III is GFR between 59 to 30ml/min. Stage IV is GFR between 29 to 15ml/min. Stage V is when the kidney function is severely impaired GFR below 15ml/min and the patient needs support from outside to sustain life. This support is termed as RRT Renal Replacement therapy which includes dialysis or kidney transplantation.

Causes of Chronic Kidney Disease (CKD)

Several conditions can cause permanent damage to the kidneys and/or affect the function of the kidneys and lead to CKD.

- **Diabetes mellitus** is the commonest cause of CKD in our country contributing to more than 30% of the total burden. Poor control of blood sugars leads to damage of the blood vessels all over the body leading to eye damage (retinopathy), kidney damage (nephropathy), damage to the nerves (neuropathy) etc. The strict control of blood sugars FBS below 100mg% and PPBS below 140 ensures that the damage doesn't progress. This happens to be one of the most important measures to combat kidney disease in a country like ours as 30% of the CKD

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burden is due to diabetic kidney disease.

- **Hypertension:** Untreated or poorly treated high blood pressure is a major cause of CKD. However, CKD can also cause high blood pressure, as the kidney has a role in blood pressure regulation. About nine out of ten people with CKD stages 3-5 have high blood pressure. Good control of BP below 140/80mmhg delays the progression of the kidney disease irrespective of the underlying cause. Presently the physicians have a long list of antihypertensive drugs. Need to choose an appropriate drug to control blood pressures and also delay the progression of CKD for eg. Group of drugs like ACE inhibitors and ARBs are known to delay the progression of CKD irrespective of the underlying cause.
- **Ageing** is related to the decline in kidney function. About half of people aged 75 or more have some degree of CKD. In most of these cases, the CKD does not progress beyond the moderate stage unless other problems of the kidney develop, such as diabetic kidney disease. It is important to make sure that this age group is not subjected to other insults on the kidney like painkillers, dehydration etc.
- **Chronic glomerulonephritis (CGN)** is a disease wherein the patient has immunological damage to the kidney leading to inflammation and decrease in the kidney function, high BP, swelling of the body etc. These patients need drugs to control BP, salt and water restriction. They benefit from a kidney biopsy which helps diagnosis and thus guides the treatment. Once specific treatment is instituted it is possible to reverse the disease or at least prevent further deterioration in the kidney functions. CGN contributes to more than 20% of the CKD burden in our country.
- **Chronic interstitial nephritis (CIN)** is a common cause of CKD contributing again to more than 20% of the total burden of CKD. This particular disease is seen in our sub-continent where the patients have no symptoms for years together. A silent and slow progression to end-stage renal disease ESRD occurs over one or two decades. Regular screening in the community to pick up kidney disease has a role in diagnosis and preventing further progression by simple measures.
- **Calculus disease or stone disease** of the kidney is another common cause

of CKD in our country. Recurrent stones in the kidney drop the function of the kidney and also the pain killers taken with each episode also contribute to a decline in the function of the kidney. Every patient with stone disease who comes in contact with a health care professional should be guided to a nephrologist for proper evaluation for the cause of stone formation and treated to avoid recurrent stones.

- **Urinary tract infections** of lower and upper tracts when recurrent lead to chronic pyelonephritis which is similar to CIN and progressively leads to severe CKD. Prompt treatment of each episode delays the progression in this case
- **Polycystic diseases** of the kidney contribute to 10% of the CKD burden. These are a group of diseases of the kidney wherein by birth patients are prone to develop cysts in both the kidneys which progressively increase in size and deteriorate kidney function. Diagnosed early it is possible to delay the progression significantly.

Acute Kidney Injury: (AKI) In any community one of the important causes of kidney disease is sudden deterioration of kidney function due to hypotension (low BP) commonly due to diarrhoeal illness, drugs like painkillers & antibiotics, infections etc. AKI should be managed promptly by a good team of doctors. As to how well it is managed will determine the outcomes both short term and long term. Severe AKI can lead to prolonged hospitalization and even death. Some of these patients need to be on dialysis for a short period until their kidney function recovers. If not properly managed the acute kidney disease can become chronic and the patient can be on life long dialysis. The present understanding is that the CKD burden in a community (30%) could be from recurrent AKI.



Symptoms:

Unfortunately there are no symptoms till the kidney disease reaches late stages. Symptoms tend to develop when CKD becomes severe (stage 4) or worse. The symptoms at first tend to be vague and nonspecific, such as feeling tired, having less energy than usual, and just not feeling well. With more severe CKD, symptoms that may develop include:

- Poor appetite
- Confusion
- Weight loss
- Dry, itchy skin
- Muscle cramps
- Fluid retention which causes swollen feet and ankles
- Puffiness around the eyes
- Need to pass urine more often than usual
- Being pale due to anaemia
- Feeling sick

If the kidney function declines to stage 4 or 5 then various other problems may develop - for example, anaemia and an imbalance of calcium, phosphate and other chemicals in the bloodstream. These can cause various symptoms, such as tiredness due to anaemia, and bone thinning or fractures due to calcium and phosphate imbalance. End-stage kidney failure (stage 5) is eventually fatal unless treated.

Treatment for ESRD is called Renal Replacement Therapy. This is a broad term which includes dialysis and kidney transplantation. Dialysis itself is of two types: Haemodialysis and peritoneal dialysis. Haemodialysis also is known as blood dialysis is done in hospitals or dialysis units and the patient has to travel thrice weekly to a unit for getting dialysed. Peritoneal dialysis is done at home and the patient can visit the doctor (nephrologist) once a month. Along with dialysis patient has to use certain medicines for controlling BP, sugars, increase Hb level etc.

Transplantation is where we take a kidney from another person and place it in the patient. The kidney donor can be a near relative like a parent, sibling or offspring. If no family donor is available cadaver transplant is an option where someone who has become brain dead secondary to a road traffic accident or stroke can donate his or her kidney. Once transplanted the patient has to take life long medicines to prevent his or her body from rejecting the

Dialysis is of two types: Haemodialysis and peritoneal dialysis. Haemodialysis is also known as blood dialysis is done in hospitals. Peritoneal dialysis is done at home and the patient can visit the nephrologist once a month.

kidney. These medicines are known as immunosuppressive drugs.

Irrespective of the underlying cause of the CKD, few measures will help prevent further deterioration of renal functions or at least delay the deterioration to ESRD by several years. These are

1. Sugar control
2. BP control
3. Using drugs like ACE inhibitors or ARBs under medical supervision for BP control and proteinuria control
4. Protein restriction is known to delay the progression but in a country like ours where the animal protein intake is not much in regular diet this should be done with caution. It needs to be explained that vegetarian protein intake need not be restricted and only nonveg protein should be restricted.
5. Lipid control helps and may need statins with monitoring
6. Obesity – weight loss in obese individuals helps to delay progression by reducing BP and reducing protein loss in the urine
7. Avoiding unnecessary medicines is very important especially pain killers antibiotics etc.
8. Several indigenous medications are known to cause a decrease in kidney functions and better avoided unless under medical supervision;
9. Smoking is associated with accelerated progression of CKD through various mechanisms. The total cessation of smoking helps to delay the progression
10. Salt intake has a bearing on BP control, protein loss in urine and progression of CKD. Reducing salt intake to 2gm of sodium intake per day is associated with delaying the progression of CKD. Equally important is to avoid potassium-containing foods and salts as high potassium in CKD is an indication for dialysis;
11. Regular exercise is associated with the delay in the progression of CKD. Physicians should encourage patients of any CKD stage to exercise at least half an hour per day 3 to 4 days a week.
12. Alcohol intake can hasten the progression of CKD and it is better to avoid alcohol or at least reduce the intake to once in a month
13. Doses of all the medicines that are taken by the patient should be adjusted to the level of the kidney function as normal may lead to accumulation of the

FEATURE

drug and increase the adverse effects

14. Vaccinations for hepatitis B, Pneumococcal and influenza should be done regularly to all patients detected to have CKD to prevent these infections in future years as the immunity decreases with progression of CKD.

We are a young nation but if the non-communicable diseases are not prevented we will be a young sick nation. Every year approximately four lakhs new patients reach end-stage kidney disease (ESRD) in our country. Being in Nephrology practice since 1994 I have seen a lot of improvement in the treatment of CKD, at the same time I understand that we (nephrology community) have failed to make the public at large aware of what a huge burden it is. That our country cannot afford this disease is obvious.

It costs at least Rs 10,000 to treat a patient with CKD, Rs 25,000/- to keep a patient on dialysis, Rs 5lakhs for a transplant. What percentage of the population can afford this? The government is spending more than it can on maintenance dialysis programmes across the country. Many district hospitals are providing dialysis facilities now which was not the case even a couple of years ago. As the patient population on dialysis is increasing the net burden on the community is so huge that we cannot afford.

The average age of a dialysis patient is below 40 years. The number of transplants in a year is less than 7000 per

year. So there is a huge gap between the supply and demand.

Therefore, treating kidney disease by medicines, dialysis or transplant is not the answer. The only answer is to prevent CKD which is eminently possible as most of the causes of CKD are treatable and thus CKD preventable. This knowledge needs to be spread in the community, both the general public and medical community. Dr. M. K. Mani has proved that this is possible with a project in rural Tamilnadu. This project is now taken as the model to prevent nephrology by the international society of nephrology. The number of nephrologists in our country is now close to 2000 whereas we need 25,000 of them. The small number of nephrologists is busy taking care of dialysis patients and transplant patients. Hardly anyone is spending time in community preventing CKD when that is the most important intervention to be done in this country.

Dr Rajasekara Chakravarthi is the founder-director of Renown Clinical Services, a group offering Nephrology services to six hospitals in Hyderabad. He is also the founding trustee of Care For Your Kidney Foundation (CFYKF) which creates awareness on kidney disease. He has played an active part in more than 650 kidney transplantations in various hospitals in India.

Basic Life Support – A Mandatory Skill



Basic Life Support (BLS) is a level of medical care which is performed for victims of life-threatening injuries until they can be given full medical care at a hospital. Not only is BLS and First-aid training becoming a mandatory requirement these days for the common public but it is also an essential tool that could prevent a person from dying or a dire situation.

BLS Training is provided by the Doctors section of CMAI using the American Heart Association modules and guidelines. CMAI provides certification for this workshop. **For details write to Dr Abhijeet Sangma: a.sangma@cmai.org and drsangma@gmail.com**

THROUGH IT ALL WITH COURAGE, FAITH AND FORTITUDE

Background

I am Verghese Jacob, age 65 years. I have been suffering from Chronic Kidney Disease (CKD) for the last 20 years. In spite of two kidney transplants and a heart surgery, I have been leading a normal and successful life managing my CKD.



Mr. Verghese Jacob

Medical History

In April 1999, for the first time, I was diagnosed with CKD due to congenital polycystic kidneys. By then my creatinine had already climbed to 13 and it was too late for any preventive measures! I was then a busy professional working for one of India's largest corporate groups and was quite successful in my career. The CKD diagnosis, at a relatively young age of 45, was like a death sentence that threatened to cut short my life abruptly!

I have been based in Hyderabad since 1997 and the city has some of the best nephrologists and hospitals for kidney care in India. After only two months of dialysis, in June 1999, I had my first kidney transplant. I got back to complete normalcy within three months of the transplant and returned to my regular routines, including hectic work hours and even playing active tennis a few times a week!

I believed that this new lease of life has been given to me for a larger purpose. So after going back to active corporate life for a couple of years, I decided to take up social work in a big way. Since then I have been very active in the social sector managing and supporting

five large social sector organizations and supporting diverse causes such as rural development, science education, mental health, drinking water, sanitation, healthcare, women empowerment etc. I am also the founder trustee of Care For Your Kidney Foundation, started in Hyderabad a few years back (www.Cfykf.org). My nephrologist Dr Chakravarthy is the prime mover behind this foundation. We focus on awareness on

kidney care and prevention of kidney diseases, which is a far more effective approach than trying to treat end-stage failure.

I am a fairly disciplined patient and have my regular checkups and also take my medicines regularly on time. Thanks to the kidney transplant in 1999, I could lead a normal life for the next 10 years.

In 2009 I had a near-fatal congestive heart failure while travelling abroad and I managed to travel back to Hyderabad and undergo angioplasty, after being in the critical ICU for over a week on the ventilator.

In 2009 I had a near-fatal congestive heart failure while travelling abroad and I managed to travel back to Hyderabad and undergo angioplasty, after being in the critical ICU for over a week on the ventilator. The stent saved my life, but the dye that was injected killed my transplanted kidney. So it was back to dialysis for the next 2 years, till I had my second kidney transplant in Cochin in 2011.

Since then I have been leading a normal life once again with a full work schedule and lots of travel. And of course, doing more social work. The only thing I had to give up was playing tennis and heavy physical activity, due to my heart condition. Daily walks have become the routine instead.

PERSONAL EXPERIENCE

Message to fellow CKD patients

I can assure all my fellow CKD patients that all of us can lead a completely normal life, regardless of our ailment. Our mind has the strength to overcome our physical frailties,

My main advice to all is to be mentally very positive, have faith in our own ability to manage CKD with courage and hope, behave and think that you are normal and to come back to your regular routines as soon as possible.

Be a cooperative patient, trust our caregivers fully, follow all their medical advice like taking your medicines on time, having regular checkups and contacting your nephrologist first as soon as you get the symptoms of any other ailment, be it fever or even a severe cold. Because treating ailments on time prevents all preventable escalations, since we are more vulnerable to infections. Whenever physicians prescribe you any new drugs, please-cross check and confirm once again that they are not nephrotoxic.

If possible, avoid being in crowded, polluted places for too long to minimize chances of infections, though this is not something we can control all the time. I believe that wearing a mask is an overkill and it diminishes our own belief that we are normal! Those on dialysis, follow your

dialysis schedules, stay within your fluid intake limits. Get used to low salt and sugar diets.

My family has been very supportive, and their love and care have helped me in this tremendously. Being strong and positive keeps rubbing off on all around us. And when you can spare the time, keep meeting patients with CKD and their families and spread your cheer and hope to them.

None of us need to fear CKD and succumb to it mentally. We can manage this like any other treatable physical ailment with excellent results. Today's medical technology has advanced tremendously to help us combat this very successfully.

Life has given us this ailment, which we can easily overcome with the right treatment and right spirit. The biggest gain it gives is to make us mentally very strong to face any future reverses in life with courage, faith and fortitude. It teaches us to be eternally grateful for all the small and big mercies and take nothing for granted. In short, we learn to accept anything that comes our way with lots of grace.

Mr. Verghese Jacob is a management consultant and social Innovator in Hyderabad. He is one of the Founder Members of Care for Your Kidney Foundation.

CMAI E-LEARNING THROUGH WEBINAR SERIES



NEWS

From July 30, 2019, CMAI has started an online webinar series for nurses, offered by the Continuing Nursing Education and Research Department, College of Nursing, CMC, Vellore. The tentative dates are July 30, August 06, 20, 27, September 03, 10 and 17, 2019

Webinar is a web-based seminar where a single presenter with an internet connection at any place of his/her choice can interact with a large and specific online audience.

The extensive yet targeted reach of a webinar underlines its effectiveness as a communication medium.

Christian Medical Association of India is offering Webinar facility to training institutions to reach virtual classrooms.

Write to the Communication Department cmai@cmai.org for details.

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DIET IN KIDNEY DISEASE

The major role of kidneys is to remove waste products and purify blood. Besides this, the kidney plays an important role in removing extra water, minerals and chemicals; and regulates water and minerals like sodium, potassium, calcium, phosphorus and bicarbonate in the body.

In patients suffering from chronic kidney disease, (CKD) regulation of fluid and electrolytes may be deranged. Because of this reason even normal intake of water, common salt or potassium can cause serious disturbances in fluid and electrolytes balance.

To reduce the burden on the kidney with impaired function and to avoid disturbances in fluid and electrolytes balance, patients with chronic kidney disease should modify their diet as per the guidance of the doctor and the dietician. There is no fixed diet for CKD patients. Each patient is given different dietary advice depending on clinical status, the stage of kidney failure and other medical problems. Dietary advice needs alteration even for the same patient at different times.

The goals of dietary therapy in CKD patients are:

1. To slow down the progression of chronic kidney disease and to postpone the need of dialysis.
2. To reduce toxic effects of excess urea in the blood.
3. To maintain optimal nutritional status and prevent the loss of lean body mass.
4. To reduce the risk of fluid and electrolytes disturbances.
5. To reduce the risk of cardio vascular disease.

General principles of dietary therapy in CKD patients are:

- Restrict protein intake to 0.8 gm/kg of body weight/day.



Dr. Sanjay Pandya

- Supply adequate carbohydrates to provide energy.
- Supply moderate amount of fats.
- Cut down intake of butter, ghee and oil.
- Limit the intake of fluid and water in case of swelling.
- Restrict the amount of sodium, potassium and phosphorus in diet.
- Supply vitamins and trace elements in adequate amount. High fiber diet recommended.

Details of selection and modification in diet of patients with CKD are as follows:

1. High Calorie Intake

The body needs calories for daily activities and to maintain temperature, growth and adequate body weight. Calories are supplied chiefly by carbohydrates and fats. Usual requirement of calories in CKD patients is 35 - 40 kcals/kg body weight per day. If caloric intake is inadequate, protein is used to provide calories. This break down of protein can lead to harmful effects such as malnutrition and greater production of waste products. So it is very essential to provide adequate amount of calories



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to CKD patients. It's important to calculate the calories requirement to patient's ideal body weight and not current weight. The weight may be either low or high especially so in patient's pre-existing malnutrition or in diabetics with CKD

2. Carbohydrates

Carbohydrates are the primary source of calories for the body. Carbohydrates are found in wheat, cereals, rice, potatoes, fruits and vegetables, sugar, honey, cookies, cakes, sweets and drinks. Diabetics and obese patients need to limit the amount of carbohydrates. It's best to use complete carbohydrates from cereals like whole wheat, unpolished rice and millets which would also give fibres.

3. Fats

Fats are important source of calories for the body and provide two times more calories than carbohydrates or proteins. Unsaturated or "good" fats like olive oil, peanut oil, canola oil, safflower oil, sunflower oil, fish and nuts are better than saturated or "bad" fats such as red meat, poultry, whole milk, butter, ghee, cheese, coconut and lard.

Among the unsaturated fats it is important to pay attention to proportion of monounsaturated and polyunsaturated fats. Excessive amounts of omega-6 polyunsaturated fatty acids (PUFA) and a very high omega-6/omega-3 ratio is harmful while low omega-6/omega-3 ratio exerts beneficial effects. Mixtures of vegetable oil rather than single oil usage will achieve the purpose. Transfats containing substances such as Vanaspati/Dalda ghee, potato chips, commercially prepared cookies and cakes should be avoided.

4. Restrict Protein

Protein is essential for the repair and maintenance of body tissues. It also helps in healing of wounds and fighting against infection. Protein restriction reduces the rate of decline in kidney function and thus delays the need for dialysis and kidney transplantation. But avoid undue protein restriction. Poor appetite is common in

CKD patients. Poor appetite and strict protein restriction together can lead to poor nutrition, weight loss, lack of energy and reduction in body resistance; which increases the risk of death.

In India, people consume mostly vegetable diet. Even those who eat non-vegetarian food don't do so on regular daily basis. The emphasis should be on improving the quality of protein consumed. Proteins of high biological value (0.4 to 0.6 gms/kg) containing milk products curd, paneer, refined soya bean powder, soya granule, soya chunks, egg white and small quantity of fish.

5. Fluid Intake

Why must patients of CKD take precautions in fluid intake? Kidneys play a major role in maintaining proper amount of water in the body by removing the excess fluid as urine. In patients with CKD, as the kidney functions worsen, the volume of urine usually decreases. Reduced urine output leads to retention and excess fluid in the body causing

puffiness of the face, swelling of the legs and hands and high blood pressure. Accumulation of fluid in lungs causes shortness of breath

If this is not controlled, it can be life threatening. Excess water in the body is called fluid overload. Swelling, ascites (accumulation of fluid in the abdominal cavity), shortness of breath, and weight

gain in a short period are the clues which indicates fluid overload.

To avoid fluid overload or deficit, volume of fluid should be taken as per the recommendation of the doctor. Volume of fluid permitted may vary for each CKD patient and is calculated on the basis of urine output and fluid status of each patient.

How much fluid is a chronic kidney disease patient advised to take?

- In patients without swelling and with adequate urine output, unrestricted water and fluid intake is permitted. But patients with chronic kidney disease should take large amounts of fluid to protect kidney is a misconception.



- Patients with swelling and reduced urine output are instructed to restrict fluid intake. To reduce swelling, fluid permitted in 24hrs should be less than the volume of urine in a day.
- To avoid fluid overload or deficit, volume of fluid usually permitted in a day = urine volume of previous day plus 500ml. Additional 500ml of fluid approximately makes up for the loss of fluid through perspiration and breathing.

Why must patients of CKD weigh themselves daily and maintain a record? The body weight remains constant when the instructions of fluid intake are followed strictly. Sudden weight gain indicates fluid overload due to increase in fluid intake. Weight gain warns the patients about the need of more strict fluid restriction. Weight loss usually occurs as a combined effect of restriction of fluid and response to diuretics.

Useful Tips to Reduce Fluid Intake:

To restrict fluid intake is difficult, but these tips will help you:

1. Weigh yourself at a fixed time every day and adjust fluid intake
2. The doctor advises you on how much fluid consumption is permitted in a day; accordingly calculate properly and drink measured volume of fluid every day. Remember fluid intake includes not only water but also tea, coffee, milk, curd, buttermilk, juice, ice-cream, cold drinks, soup, thin dal etc. While calculating fluid intake you must also calculate the hidden fluids in your food. Beware of foods such as watermelon, grapes, lettuce, tomatoes, celery, gravy, gelatin, frozen treats like popsicles etc. as they have high water content.
3. Reduce salty, spicy and fried food in your diet as they increase thirst, leading to greater consumption of fluids.
4. Drink only when you are thirsty. Do not drink as a habit or because everyone is drinking
5. When you are thirsty take a small amount of water or try ice. Take a small ice cube and suck it. Ice stays longer in the mouth than liquid, so it is more satisfying than the same amount of water.
6. To take care of dryness of mouth, one can gargle with water without drinking it. Dryness of mouth can be reduced by chewing gum, sucking hard candy, lemon wedge or mints and the use of mouthwash to moisten mouth.

7. Always use small size cup and glass for your beverages to limit fluid intake.
8. Take medicines after meals when you are taking water to avoid extra water consumption for medicine.
9. A patient must keep himself busy with work. A patient who has little to occupy himself feels the desire, to drink water more often.
10. High blood sugar in diabetic patients can increase thirst. So a stringent control of blood sugar is essential to reduce thirst.
11. Since hot weather increases one's thirst, any measure taken to live in cooler comfort is desirable and recommended.

How to measure and consume precisely the prescribed amount of fluid per day?

- Fill a container with water equal to the exact amount of fluid prescribed by the doctor for daily intake.
- The patient must bear in mind that one should take no more than that amount of fluid intake which is permitted for the day.
- Each time the patient consumes a certain amount of fluid; the same amount of water should be removed from the water container and discarded
- When the container has no more water, the patient realizes that his limit of fluid intake for the day has been reached and no more is to be drunk. The patient is advised to distribute total fluid intake evenly throughout the day to avoid the need of additional fluid.



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- This control method is to be repeated every day.
- By this simple but very effective method the prescribed volume of fluid can be precisely delivered to the patient and fluid intake can be restricted.

6. Salt (Sodium) Restriction

Sodium in our diet is important for the body to maintain blood volume and to control blood pressure. Kidneys play an important role in the regulation of sodium. In patients with CKD, kidneys cannot remove excess sodium and fluid from the body so sodium and water build up in the body. Increased amount of sodium in the body leads to increased thirst, swelling, shortness of breath and increase in blood pressure. To prevent or reduce these problems, the patients of CKD must restrict sodium intake in diet.

What is the difference between sodium and salt? The words sodium and salt are routinely used as synonyms. Common salt is sodium chloride which contains 40% sodium. Salt is the principle source of sodium in our diet. But salt is not the only source of sodium.

There are quite a few other sodium compounds in our food, such as:

- Sodium alginate: Used in ice-cream and chocolate milk.
- Sodium bicarbonate: Used as baking powder and soda.
- Sodium benzoate: Used as a preservative in sauce.
- Sodium citrate: Used to enhance flavor of gelatin, desserts and beverages.
- Sodium nitrate: Used in preserving and coloring processed meat.
- Sodium saccharide: Used as artificial sweetener.
- Sodium sulfite: Used to prevent discoloration of dried fruits.

The above mentioned compounds contain sodium but are not salty in taste. Sodium is "hidden" in these compounds.

Average intake of salt in Indian population is about 6 to 8 grams per day. Patients with CKD should take salt according to the recommendation of the doctor. CKD patients with swelling and high blood pressure are usually advised to take about three grams of salt per day.

7. Potassium Restriction

Potassium is needed for the proper functioning of muscles and nerves and to keep heartbeat regular.

Normally, the level of potassium in body is balanced by

eating potassium containing foods and removal of excess potassium in the urine. Removal of excess potassium in the urine may be inadequate in a patient with CKD which can lead to high level of potassium in the blood (a condition known as hyperkalemia). Between the two kinds of dialysis patients, the risk of hyperkalemia is lesser in peritoneal dialysis compared to that in hemodialysis. The risk differs in both groups because the process of dialysis is continuous in peritoneal dialysis while it is intermittent in hemodialysis.

High potassium levels can cause severe muscle weakness or an irregular heart rhythm which can be dangerous. When potassium is very high, the heart can stop beating unexpectedly and cause sudden death. High potassium level can be life threatening without noticeable manifestations or symptoms (and therefore it is known as a silent killer).

What is normal potassium level in blood? When is it considered high?

- Normal level of potassium in blood is 3.5 mEq/l to 5.0 mEq/l.
- When the level of potassium reaches 5.0 to 6.0 mEq/l, it needs modification in diet.
- When the level of potassium is greater than 6.0 mEq/l, it is dangerous and needs active intervention to reduce it. When the level of potassium is greater than 7.0 mEq/l, it can be life threatening and needs urgent treatment.

Practical Tips to Reduce Potassium in Food

- Take one fruit per day, preferably with low potassium.
- Take one cup of tea or coffee per day.
- Vegetables with potassium should be taken after reducing the amount of potassium (as mentioned below).
- Avoid coconut water, fruit juices and foods with high potassium contents (as listed above).
- Almost all food contains some potassium, so the key is to choose food with a low potassium level, when possible.
- Restriction of potassium is necessary not only for pre-dialysis CKD patients, but is also necessary even after initiating dialysis.

8. Phosphorus Restriction in Diet

Phosphorus is a mineral essential to keep bones strong and healthy. Usually extra phosphorus present in food is removed in urine and thereby the blood phosphorus

levels are maintained. Normal value of phosphorus in blood is 4.0 to 5.5 mg/dl.

In CKD patients the extra phosphorus taken in food is not excreted in urine and so the blood level rises. This increased phosphorus drains out calcium from the bones making them weak.

Increase in phosphorus level can lead to many problems like itching, weakness of muscles and bones, bone pains, bone stiffness and joint pain. The stiffness of bone results in increased susceptibility to fracture.

9. High Vitamin and Fibers

CKD patients suffer from inadequate supply of vitamins during pre-dialysis period due to reduction of food intake, special method of cooking to remove excess potassium and poor appetite. Certain vitamins– especially water soluble vitamins B and C, folic acid etc – are lost during dialysis.

To compensate for inadequate intake or loss of these vitamins CKD patients usually need supplementation of water-soluble vitamins and trace elements. High fiber intake is beneficial in CKD.

Designing the Daily Food

For CKD patients daily food intake and water intake is planned and charted out by the dietitian in accordance with the advice of a nephrologist.

Dr. Sanjay Pandya is senior nephrologist from Gujarat, he is founder of World Record Award Winner Kidney website available in 37 Languages. He is the author of India’s most popular book on fluid therapy, “Practical Guidelines on Fluid Therapy”.

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LIVING WITH CKD

(Translated from Odiya to English)

In the year 2016, May 26, I was diagnosed to have Chronic Kidney Disease. This was a very sudden and serious medical issue, shocking both me and my family.

My life was turned upside down. From the time I was diagnosed to have CKD - I did not feel like a normal person. I was totally broken. I was worried about my family, who would take care of them. I am the bread winner of the family. I have three small children and my wife is a home maker. There were lots and lots of questions in my mind – what will happen after this, will I get better or not, etc. The future was all blurred.

Within a few days of the diagnosis, I was referred to CMC Vellore for treatment. I

was filled with fear and anxiety. I requested many people for prayer. I do trust in Jesus, even though I belong to a Hindu family. It was a very terrifying experience for me.

In Vellore, I went through investigations and the treatment protocol was given to me. In my desperation I also went to Prayer Tower, Chennai to request for prayer, as I was quite sick. On coming back home, I began taking medications regularly and modified my diet according to the plan given to me. After one month of rest, I joined my duty. I continue to work as a Nurse Aide in our Operation Theater. I am slowly recovering and getting back to all the duties, as I was doing before.

I am now living a happy life because I am no longer 'frightened' of having CKD. I am able to do almost everything - but I have to take regular medication and

the renal diet. I know my God is with me. My wife and my family are very caring and supportive of me from the day of my diagnosis. When I realized that I should encourage my wife to do some work, she expressed her interest in nursing. She is currently pursuing GNM course now.



Mr. Prasanna Kusulia with family

I have been going for regular check-ups to CMC since 2016. Once on treatment, my creatinine levels have now stabilized between 2 and 2.5 mg/dl and my BP is normal. After my duty, I go to play volleyball and cricket every day. I like to spend time with family members and friends; and prayer is now important for me.

I used to be a very short tempered person previously, but now I feel I can manage my anger. God has given me time to be good. Whenever I get a chance to share my story with people with CKD, I use the opportunity to encourage them. I am grateful to CHB and all the staff and administration for helping me and my family - financially, spiritually and psychologically and in every way.

My family life is stable now – the children are going to school. I am satisfied with my job. With regular medication and follow-up, life goes on – because God is taking care of me.

Mr Prasanna Kusulia is working as a Nurse Aide in Christian Hospital, Bissamcuttack, helping in the work of the Operation Theatre.

*Extracts from Current Literature***SUCCINYL-SULPHATHIAZOLE**POTH, E. J., *J. Am. M. Ass.*, 120: 265. 1942

The ideal intestinal antiseptic should be poorly absorbed from the alimentary canal and should possess strong antibacterial local action. Moore and Miller have recently synthesized such a compound with properties approximating these specifications. This drug has been used for about one year and studies have been made on about 250 patients. All cases have been studied closely for evidence of haemocytological changes and accumulation of the drug in the blood stream. The total quantity of the drug excreted in the urine was determined in the majority of the cases. The alteration in the intestinal flora was assayed by quantitative studies along bacteriological lines. Within from one to seven days of the institution of sulphasuxidine therapy the feces became semifluid, small in bulk, somewhat gelatinous in appearance, and relatively odourless.

When these changes occur, the bacterial flora of the bowel will have been considerably altered. The escherichia-coli count will have dropped from an average of 10,000,000 to less than 1,000 organisms per gram of wet stool. Both the Gram-positive and Gram-negative organisms decrease in number at approximately the same logarithmic rate for a few days until the Gram-positive population becomes constant. The number of Gram-negative bacteria continues to fall. The drug has both bactericidal and bacteriostatic action.

During the past six months the following regimen has been instituted for the pre-operative preparation of all patients whose intestine is not completely obstructed and who require operation on the large bowel:

The patient is put on a low residue diet and receives succinyl-sulphathiazole. A dosage of 0.5 gm. per kilogram of body weight

is given during the first day and thereafter 0.25 gm. per kilogram divided into 6 equal doses and administered at four-hour intervals is given daily. No enemas or purgatives are used. Ordinarily after from three to seven days the stools will become small in bulk, semifluid and relatively odourless. The bacterial flora will be significantly altered. The patient's abdomen is flat and the bowel free from gross fecal material and gas. When the escherichia-coli count has dropped to 1,000 and other changes in the feces have taken place, the bowel is regarded as properly prepared for operation.

A dogmatic evaluation of the benefit resulting from the administration of this drug in the pre-operative and post-operative therapy of patients subjected to operative procedures on the large bowel cannot be arrived at after only one year of use on a total of 50 patients. However, the study indicates strongly that the post-operative course is unusually smooth, that serious complications due to infection following fecal contamination are largely eliminated, and that the period of hospitalization and convalescence is definitely shortened. The toxicity of the drug is slight. There is no evidence of kidney damage. No deaths occurred following primary suture of the large bowel in the 30 cases included in this study. Two deaths have occurred following abdomino-perineal resection of the rectum. In one instance, the blood supply to the distal 6 in. of the descending colon was insufficient with resulting necrosis of this segment. In the second case, anuria developed post-operatively and autopsy revealed that both ureters were blocked by a large perineal pack left in situ.

THE BURDEN OF CHRONIC KIDNEY DISEASE IN INDIA

The prevalence of Chronic kidney disease (CKD) is increasing worldwide. The World Health Organization's worldwide estimate of CKD stage 5 (CKD G5) on renal replacement therapy exceeds 1.4 million¹ and this number is estimated to be growing at 8% each year.² The increased morbidity and mortality associated with CKD makes it rightly deserving of a heightened health-care attention, largely limited to the developed nations.

Although, it constitutes only 2.4% of the earth's land surface area, India is host to nearly 18% of the world's population. Widely prevalent intrauterine growth retardation, lower socioeconomic status, and environmental factors, including sanitation, pollutants, infectious agents and water sources,³ are added predisposing risk factors in this region in addition to the burgeoning increases in incidence of hypertension and diabetes mellitus.⁴ There are many factors by which a lower socio-economic status influences health and disease. In fact, India is all set to have the world's largest population of people with diabetes mellitus by 2030.⁵ Overcrowding, increased exposure to infective agents and nephrotoxins (known and unknown) are likely to lead to glomerular and interstitial kidney diseases. Plant toxins that cause nephrotoxicity similar to aristolochic acid nephropathy and heavy metals in certain indigenous / herbal remedies have been suspected but remain unproven.

South Asians born in the developed world are at an inherent risk of a smaller renal volume at birth⁶ that may increase the risk of future CKD. Malnutrition in pregnancy including low vitamin A⁷ may be contributors to the smaller renal volume. Data from United Nations Children's Emergency Fund (UNICEF) shows the world's highest incidence of low birthweight births (newborns'

birthweight less than 2.5kg) is 28% and is the highest in the world. Pakistan (32%) and India (28%) have the highest incidence in this region.⁸ What is also striking is that two-thirds of the newborns are not weighed at birth.⁸ Consanguinity and genetic inbreeding is common. Children born of a consanguineous union are at a higher risk of congenital anomalies of the kidney and urinary tract (CAKUT) and obstructive or reflux nephropathy.^{6,9}



Dr. Georgi Abraham



Dr. Santosh Varughese

The burden of CKD in India has been varied with the population studied. The studies all suffer from various limitations. However, overall, about 6% of the population has an estimated glomerular filtration rate (eGFR) less than 60ml/min/1.73m². These figures are at variance with the 12-20% CKD prevalence in the developed nations.¹⁰ In the relatively large SEEK (Screening and Early Evaluation of Kidney disease) study of 5588 persons from 12 cities, the prevalence of CKD was 17.2% (using presence of dipstick albuminuria and / or CKD-EPI based eGFR < 60ml/min/1.73m² as diagnostic criteria).¹¹ The crude and age-adjusted incidence of ESRD in an urban population based of about 570,000 persons was 151 and 232 pmp.¹²

The Indian CKD registry, set up in 2005 with data from 199 centers showed a high prevalence of diabetic nephropathy (31%).¹³ Almost three-fourths had e GFR < 30ml/min/1.73m². The contribution of CKD to mortality is as yet unknown. It is estimated that over half the deaths in India are due to chronic diseases though the contribution of CKD has yet to be clearly delineated.¹⁴

India has also its share of the world's CKD hotspots¹⁵ – areas where the prevalence of CKD is higher than expected in the general population.

Over 50% of the patients with CKD G5 may have estimated glomerular filtration rate (eGFR) less than 15ml/

min/1.73m² at initial doctor visit signifying late diagnosis presumably due to delay in seeking medical attention.¹⁶ The lack of overt symptoms in the early stages of CKD may have resulted in this delay of evaluation.

The Gross Domestic Product (nominal) per capita and the percentage allocation for health for South Asian countries and the budget allocation for healthcare pales in comparison to those in developed countries. Also, CKD does not get the priority it deserves, as the focus is on the competing interests of communicable diseases and infant and maternal mortality being deemed deserving a higher priority.¹⁷

There is one doctor in India for 1674 people, far lower than the 1:1000 World Health Organization (WHO) recommendation as well as that which the country set for itself by the fifth planning commission's 'High Level Expert Group for Universal Health Coverage'.¹⁸ The population of 1.32 billion is served by about 1600 nephrologists, unequally distributed, with more in cities and less in remote areas. This compounded by the "brain drain" to the developed countries adds to the inadequate workforce.²³ Three of the north-eastern states of India have no nephrologist while some cities have large numbers of nephrologists. Figure 2 shows the distribution of renal replacement therapy facilities and nephrologists across the different zones in India.¹⁹ Central India has only 2.5% of the total number of nephrologists and the East has 9%.¹⁹

Without the involvement of physicians at all levels, from the primary health centres onwards, prevention and early detection of CKD will remain an unfulfilled dream. Partnering of nephrologists with primary care and family physicians, internists, other specialists is the only way to provide quality care to patients with CKD. Timely nephrology referral for early and appropriate evaluation and initiation of treatment and thereafter, the patient can be under his physician's follow up until the next scheduled review. The Indian Society of Nephrology has made teaching modules on management of CKD for non-nephrologists to increase competence as well as assure uniformity of delivered care.

Treatment of end stage renal disease (ESRD) in India has been available since hemodialysis was introduced in 1961, transplantation in 1971 and peritoneal dialysis (PD) in 1991.¹⁷ The government has planned to have stand-alone hemodialysis (HD) centres to offer dialysis

at a lower cost²⁰ under the National Dialysis Services Programme with every district hospital offering dialysis services as a Public Private Partnership (PPP) model. The actual recurring costs of a session of HD is approximately \$9 (Rs 600) to \$13 (Rs 1000) (without costing for the space allotted and the HD machines)²¹ but the expenses incurred by the patient can vary greatly and is unaffordable to a large percentage of patients. The government hospitals in the southern states in India have HD and PD facilities that are free for the poor patients.

This is a boon for the patients who are able to avail of the services though the number that can be accommodated in the maintenance HD programs is restricted and offer only two sessions per week. Improvement in the infrastructure in these hospitals will go a long way in benefitting a much larger section of the community. Additionally, in some of these states, the state government has introduced insurance schemes e.g. in Tamil Nadu, the Chief Minister's Health Insurance Scheme and in Andhra Pradesh and Telengana, the Arogyasri scheme, by which poor patients may avail of free HD and transplantation services from private hospitals.

A few NGOs like the Tanker Foundation in Tamil Nadu and Kerala offer HD at highly subsidized charges for the deserving poor.¹⁷ India has over 1,10,000 prevalent chronic HD patients, 94% of whom undergo twice weekly HD sessions of four hours each.²² Most of the HD centers are located in the cities and towns while most of India live in villages forcing patients to travel long distances to reach them. This loss of time and money can be saved by opting for PD, that can be done in the patients' homes. Despite its introduction in 1991, PD still remains a distant second. Properly undertaken cost analysis shows that the costs of doing HD and PD are similar.²³ Most insurance companies do not offer coverage for PD and is among

the several reasons for low PD utilization.²⁴

Survival, quality of life and cost-effectiveness are best for renal transplantation and barring contraindications, should be the default modality of Renal Replacement Therapy (RRT). However, higher initial costs and availability of living related donors are major hindrances for renal transplantation in India.²⁵ Annually, about 3500 renal transplants are done in 200 centers, mostly in private hospitals. Deceased donor transplants have increased in several Indian states and is slowly bridging the gap between organ requirement and availability and has caused a decline in commercial transplantation.²⁶

Without the involvement of physicians at all levels, from the primary health centres onwards, prevention and early detection of CKD will remain an unfulfilled dream.

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In order to study CKD progression in India, the Indian Chronic Kidney Disease (ICKD) study cohort is presently recruiting about 5000 patients across India and is hoped will better define the risk factors for and rate of decline of renal function in Indian patients²⁷

The International Society of Nephrology (ISN) has funded screening programs aimed at early diagnosis of CKD in the developing countries of South Asia. Much more needs to be done among the members of the community to improve awareness, prevention, early diagnosis early and prompt treatment, as well as affordable and easily accessible RRT. Success of this ideal will necessitate

the united effort of the government, nongovernmental organizations (NGOs), philanthropists and the members of the community in general.

Dr. Georgi Abraham is Professor of Medicine and consultant nephrologist at Madras Medical Mission/ Pondicherry Institute of Medical Sciences. He was the one to pioneer and introduce peritoneal dialysis in India. He runs the charitable dialysis centre -'Tanker Foundation' for free or highly subsidised hemodialysis. Dr Santosh Varughese is Prof & Head of Nephrology, CMC, Vellore;

REFERENCES

1. Moeller S, Gioberge S, Brown G. ESRD patients in 2001: global overview of patients, treatment modalities and development trends. *Nephrol Dial Transplant* 2002; 17: 2071-2076.
2. Schieppati A, Remuzzi G. Chronic renal disease as a public health problem: epidemiology, social, and economic implications. *Kidney IntSuppl* 2005; 68: 7-10.
3. Garcia-Garcia G, Jha V. CKD in disadvantaged populations. *Kidney Int* 2015;87(2):251-253.
4. Jayawardena R, Ranasinghe P, Byrne NM, et al. Prevalence and trends of the diabetes epidemic in South Asia: a systematic review and meta-analysis. *BMC Public Health* 2012 May 25;12:380.
5. Wild S, Roglic G, Green A, et al. Global Prevalence of Diabetes. *Diabetes Care* 2004 May; 27(5): 1047-1053.
6. Roderick PJ, Jeffrey RF, Yuen HM, et al. Smaller kidney size at birth in South Asians: findings from the Born in Bradford birth cohort study. *Nephrol Dial Transplant* 2016 Mar;31(3):455-465.
7. Goodyer P, Kurpad A, Rekha S et al. Effects of maternal vitamin A status on kidney development: a pilot study. *PediatrNephrol* 2007; 22: 209-214.
8. Undernourishment in the womb can lead to diminished potential and predispose infants to early death. <http://data.unicef.org/nutrition/low-birthweight.html>. Updated: Apr 2016
9. Abraham G. The challenges of renal replacement therapy in Asia. *NatClinPractNephrol* 2008 Dec;4(12):643.
10. de Jong PE, van der Velde M, Gansevoort RT, et al. Screening for chronic kidney disease: where does Europe go? *Clin J Am SocNephrol* 2008; 3(2):616-623.
11. Singh AK, Farag YM, Mittal BV, et al. Epidemiology and risk factors of chronic kidney disease in India - results from the SEEK (Screening and Early Evaluation of Kidney Disease) study. *BMC Nephrol.* 2013 May 28;14:114.
12. Modi GK, Jha V. The incidence of end-stage renal disease in India: a population-based study. *Kidney Int* 2006; 70(12):2131-2133.
13. Rajapurkar MM, John GT, Kirpalani AL, et al. What do we know about chronic kidney disease in India: first report of the Indian CKD registry. *BMC Nephrol.* 2012 Mar 6;13:10.
14. Reddy KS, Shah B, Varghese C, et al. Responding to the threat of chronic diseases in India. *Lancet* 2005 Nov 12;366(9498):1744-9.
15. Abraham G, Varughese S, Thandavan T, et al. Chronic kidney disease hotspots in developing countries in South Asia. *Clin Kidney J* 2016 Feb;9(1):135-141.
16. Varughese S, John GT, Alexander S et al. Pre-tertiary hospital care of patients with chronic kidney disease in India. *Indian J Med Res* 2007; 126: 28-33.
17. Abraham G, Thandavan T, Varughese S, et al. CKD in South Asia. https://www.era-edta.org/newsletter_ndt_southasia.html
18. High Level Expert Group Report on Universal Health Coverage for India, Planning Commission of India New Delhi, November, 2011. Available from: http://planningcommission.nic.in/reports/genrep/rep_uhc0812.pdf, accessed on October 10, 2012.
19. Agarwal SK, Srivastava RK. Chronic kidney disease in India: challenges and solutions. *Nephron ClinPract* 2009;111(3):c197-203;
20. Healthcare Union Budget 2016. <https://www.kpmg.com/IN/en/services/Tax/unionbudget2016/Documents/Healthcare.pdf>, page 5
21. Khanna U. The economics of dialysis in India. *Indian J Nephrol* 2009 Jan;19(1):1-4.
22. Abraham G, Varughese S, Thandavan T, et al. CKD in South Asia – an update. https://www.era-edta.org/newsletter_ndt_southasia_update.html
23. Jeloka TK, Upase S, Chitikeshi S. Monthly cost of three exchanges a day peritoneal dialysis is same as of thrice a week hemodialysis in self-paying Indian patients. *Indian J Nephrol* 2012 Jan-Feb; 22(1): 39-41.
24. Reddy YN, Abraham G, Mathew M, et al. An Indian model for cost-effective CAPD with minimal manpower and economic resources. *Nephrol Dial Transplant* 2011;26(10):3089-3091.
25. Veerappan I, Neelakantan N, Tamilarasi V, et al. Medical and nonmedical factors that affect voluntary living-related kidney donation: a single-center study. *Indian J Nephrol* 2011;21(1):14-20
26. Abraham G, Reddy YN, Amalorpavanathan J, et al. How deceased donor transplantation is impacting a decline in commercial transplantation-the Tamil Nadu experience. *Transplantation* 2012 Apr 27;93(8):757-760.
27. Kumar V, Yadav AK, Gang S, et al. The Indian Chronic Kidney Disease (ICKD) Study: Design and Methods. *Nephrology (Carlton)*. 2016 Apr 6. doi: 10.1111/nep.12789.

KIDNEY TRANSPLANTATION

A SOLUTION TO END STAGE KIDNEY FAILURE

Organ transplantation is one of the greatest medical marvels of the 20th century, which has prolonged and improved the lives of hundreds of thousands of patients, worldwide. Countless acts of generosity by organ donors and their families have made transplantation not only a life-saving treatment but also a shining symbol of human solidarity.¹

Kidney transplantation in India has progressed over the last 45 years. India has the largest number of transplantations, second only to the US, which tops the figures.

In 2016, in its reply to a Lok Sabha question, the Union Health Ministry noted that there is a huge gap between the demand and supply of human organs for transplant even though the precise numbers of premature deaths due to heart, liver, lung and pancreas failures have not been compiled. The Ministry noted that against the demand for 2 lakh kidneys, only 6,000 were available. Similarly, against the demand for 30,000 livers only 1,500 were available, and against the demand for 50,000 hearts merely 15 were available across the country. According to the Multi Organ Harvesting Aid Network Foundation (MOHAN Foundation), a Chennai-based NGO working on organ donation, only about 3% of the demand is met.²

Transplant of Human Organ (THO) Act 1994

India enacted the Transplant of Human Organ (THO) Act in 1994 to streamline organ donation and transplantation procedures. Due to this Act, besides kidney transplantation, other organ transplants such as liver, heart, lungs, and pancreas became possible.

The field of urology has progressed with its minimal invasive methods, and managed to avoid transplant surgery complications. Initially, early rejections after transplant were common. Now, with the emergence of new immuno-suppressants and induction agents, there is a reduced use of high-dose steroids and hence, reduced post-operative complications.

The Indian law mandates a 'required request' available to intensive care doctors to request organ donation, once brain death is confirmed. A trained transplant coordinator is required for counselling relatives for organ donation. This move has increased cadaver (brain dead) donation in India.

The success of the Organ Donation programme is early identification, followed by certification and maintenance of potential donors in the intensive care units. It has become the responsibility of the hospital to counsel the relatives of the deceased and advise them about organ donation. Private hospitals do a better job in this programme. However, since most of the victims of brain injuries happen due to road accidents, they land up in government hospitals due to medico-legal issues.³

Over time, with improved procedures, reduced costs and better outcome, organ transplants have matured in India.. Compared to kidney and liver transplants, very few Indians opt for heart and lung procedures due to high cost and complexity of the procedure. Tamil Nadu government offers subsidy to poor patients undergoing liver transplants.

The best way, as done in Tamil Nadu and Kerala, is to enroll all domestic patients through State registries and which should be the mandate for the National Organ and Tissue Transplant Organisation. Hospitals and professionals who engage in commercial or unethical behaviour should have no place in the system.

Kidney Scandals

Despite the THO legislation, organ commerce and kidney scandals are regularly reported in the Indian media. This Act accepted brain death as end of life and made organ sale a punishable offence till recently.

Not long ago, media reported kidneys being bought and sold in Tamil Nadu and New Delhi. These reports give an impression that anyone can buy a kidney in India. The recent expose in The Hindu says, *the epicentre of this*

REFLECTIONS

massive illegal organ trade is the National Capital Region. The web of criminals includes police personnel, doctors, hospital administration staff, medical support staff, and kidney and liver donors, all catering to patients with end stage kidney and liver failure.... A dozen leading private surgeons are under the scanner now. These include top urologists in Delhi who allegedly worked in nexus with some police personnel from Uttar Pradesh Police as well as brokers (some of whom were previous donors themselves) to ensure a smoothly running profitable trade, the value of which some people peg at over Rs 100 crore. (The Hindu, July 7, 2019).

The legal and ethical principles that we follow universally with organ donation and transplantation are very



important for the future as these may be used to resolve our conflicts related to emerging sciences such as cloning, tissue engineering, and stem cells.

Who Buys; Who Sells

The development of renal transplant as a treatment for end-stage renal disease was a landmark. Considering the fact that all transplant patients must be on immune-suppressive therapy for life, the seekers of renal transplants are from the affluent class, whereas only the financially desperate will offer to sell any organ of their body. There are exceptions to this like the one which caught much media attention when Mr Kochouseph Chittilappilly, a philanthropist and industrial magnate (founder of V Guard), offered his kidney to a poor patient. He became an overnight ambassador for the organ

donation programme in Kerala. Many people pledged their organs after this event.

Live vs. Cadaver

The Indian Transplant Registry notes that LIVE transplants account for the majority of kidney transplants in India (90%); cadaver transplants account for a very small number (10%)⁴. Surprisingly, in our country, there are no long term studies on the safety of kidney donor's health.

The Transplantation of Human Organs (THO) Act, 1994, intended to promote cadaveric organ transplantation in India. However, this could not be possible due to the inclusion of exceptions permitting the continued sale of kidneys (the proviso that a person not related to the patient

could donate a kidney by reason of 'affection' and the inclusion of the spouse as 'near relative' so that people can marry for organ 'donation'). Another reason is the availability of poor people ready to sell one of their kidneys and it justifies the transaction as 'good for both – the seller and buyer'. The medical establishment, especially the private sector, is ready to compromise on unethical pressures, says the media reports. Most importantly, Indians show reluctance to promote cadaver organ transplant due to myths associated with removing organs while the heart is beating with ventilator support. Brain death is still an enigma to ordinary citizens. It calls for more awareness

programmes by government, civic bodies and NGOs.

Indian Transplant Registry

An 'Indian transplant registry' has been established over the past two years due to the efforts of the Indian Society of Organ Transplantation. This society is about 20 years old with over 450 members who are doctors and scientists. The registry can be viewed at www.transplantindia.com. Sadly, this registry has not been updated since 2015.

The objective of the registry was to have a centralized repository of information of the various transplants that are being undertaken in India. The data includes the number of transplants done yearly, the sex ratio and type of transplant. The society and its members have supported the formation of the registry and are enthusiastic about its potential.⁵

The Transplant Authority of Tamil Nadu (TRANSTAN) was established in 2015 as a registered society under the chairmanship of the Chief Minister.

In India, the cadaver organ donation programme is largely restricted to big institutions and the private sector which makes it less accessible to all.⁶

TRANSTAN

Here is an example of how a state government should respond to the unethical practices. The Transplant Authority of Tamil Nadu (TRANSTAN) was established in 2015 as a registered society under the chairmanship of the Chief Minister. Its functions include: (a) Streamlining all procedures related to Cadaver and Living Organ Transplantation, (b) helping hospitals identify brain stem death, (c) distributing organs in a transparent manner, (d) maintaining an online waitlist registry, (e) transmitting soft skills related to donor maintenance, (f) helping hospitals in medico legal procedures, (g) liaising with Police in providing Green Corridor for transporting organs, (h) compiling a state and regional database, (i) liaising with neighbouring States in organ sharing, and (j) liaising with the Government of India on issues related to transplants.⁷

TRANSTAN has listed 89 licensed hospitals and more than 1000 registered empanelled doctors. Tamil Nadu has the highest number of hospitals with different organ transplant teams that are licensed for organ and tissue transplantation in the country. 78 Hospitals in Tamil Nadu have registered with National Organ Tissue and Transplant Organization (NOTTO) in the year 2018.

A registry is maintained by an NGO, MOHAN Foundation and is overseen and supported by TRANSTAN.

If you wish to support organ donation, please visit www.mohanfoundation.org. There are multiple ways they can engage you in our work depending on your situation: Become a Life Member to advocate for organ donation and get their kit along with regular updates; volunteer for the foundation or join them on Social Media sites Facebook and Twitter

Conclusion

One potential brain dead donor can save the life of eight patients suffering from end stage organ disease, says TRANSTAN. Tamil Nadu state claims the Maximum Organ Utilization in India and it has been increasing year by year.

This article is compiled from various media and journal reports. The compiler, Mr Jacob C Varghese who works with CMAI, underwent a cadaver liver transplantation at CMC Vellore on May 23, 2017.

REFERENCES:

- 1 Deceased organ donation and transplantation in India: Promises and challenges, [Aneesh Srivastava](#), [Anil Mani](#) Department of Urology and Renal Transplantation, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, Uttar Pradesh, India; Neurology India Year : 2018 | Volume : 66 | Issue : 2 | Page : 316-322
- 2 The Hindu, July 27, 2019
- 3 [Indian Journal of Urology](#). 2009 Jul-Sep; 25(3): 348–355.
- 4 [Indian J Urol](#). 2016 Jul-Sep; 32(3): 173–174.
- 5 [Indian Journal of Urology](#). 2007 Jul-Sep; 23(3): 272–277
- 6 Indian Transplant Registry
- 7 <https://transtan.tn.gov.in/>

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CMAI members come together once every two years to exchange experiences and to update knowledge in the health sector. The upcoming Biennial Conference will be organised at the Leonia Holistic Destination, Hyderabad, Telangana from November 7 to 9, 2019. CMAI member institutions and sponsors will be allotted space for exhibition stalls.

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Please contact: Dr Abhijeet Sangma, Doctors Section Secretary. drsangma@gmail.com



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7 - 9 NOVEMBER 2019 HYDERABAD

Theme: Who Touched Me?

PROGRAMME HIGHLIGHTS:

Day 1

Inaugural Ceremony
Business Session 1
Cultural Programme 1

Day 2

XIV Jacob Chandy
Oration
Dr DW Mategaonkar
Awards
Young Medical
Missionary Awards
Sectional Meetings
Cultural Programme II

Day 3

IV Aley Kuruvilla
Oration
Business Session II
Valedictory Session
Exclusive Student
Nurture Session



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For availing concessions and discounts, contact your respective section heads.
Students, please join the pre-conference workshop on November 7th morning.