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# *AYURVEDIC* APPROACH TO THE DIAGNOSIS OF CHRONIC KIDNEY DISEASE W.S.R. TO *PANDU ROGA* AS *VYADHI SANKAR*: A SCOPING REVIEW

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## ABSTRACT

Chronic Kidney Disease (CKD) is the 16th leading cause of death in worldwide.In developed and developing countries, CKD is most commonly attributed to diabetes mellitus and hypertension. However, less than 5% of individuals with early CKD report awareness of the disease. Among individuals, diagnosed with CKD,staging and new risk assessment tools that incorporate GFR and albuminuria can help in monitoring staging of CKD, guide treatment and referral strategies. In Ayurveda classics, there is no explaination about CKD as *Mutra Roga*. In Ayurveda, disease described on pathological parameters these are *Nidan Panchak*(*Dosha, Dushya, Srotas, Srotasdusti, Adhishthan, Sadhya-Asadhyata,* state of *Agni* and *Ojas*) and *Shatakriyakala*. This article is an attempt to explain CKD with the help of above Ayurvedic diagnostic tools which reveals the collaborative deterioration of *saptadhatu.* As a sequel of this,*Panduta, Medadusti, Prameha Lakshana* appears as *Nidanarthkar Roga* in CKD results in *bala, varna, sneha, oja kshaya*. All these *Nidanarthakar Roga* explained in Ayurveda develops in different stages of CKD that's the reason Chronic Kidney Disease show similarity with *Pandu Roga*.

**KEYWORDS:** Chronic Kidney Disease(CKD), *Pandu Roga, Vyadhi Sankar, Nidan Panchak, Shatkriyakala.*

## INTRODUCTION

Kidney is sophisticated, highly vascularized organ that plays major role in maintaining homeostasis of the whole body. The kidneys not even filters blood and remove metabolic waste products from the blood as urine (urea,$NH^{-3}$ and bile products)and consequently maintain the levels of electrolytes, water and pH of tissue fluids in body. The functional unit of the kidney are the nephrons, which consists of the glomerulus, proximal convulated tubules (PCT), Distal convulated tubules(DCT), collecting ducts(CD's) and a unique vasculature. Nephrons removes urine flows through two tubes, called ureters, to the bladder. Additionally, kidney systems, secrete erythropoetin hormone that stimulates RBC production, uniquely able to control O2 tension, circulating volume electrolytes production & regulates blood pressure(B.P.) via Renin-Angiotensin Aldosterone System(RAAS).[1] Substantially it contribute in activation of vitamin D to control calcium, phosphate balance. The filtration function of kidney is accomplished by the collective contribution of renal system but whenever there is a endowment of kidneys structurally and functionally which is irreversible, due to various etiological factors raises the susceptibility risk to Chronic Kidney Disease(CKD).

The defination and classification of CKD on the basis of international guidelines of National Kidney Foundation(NKF) is the structural and functional abnormalities of kidney present for at least three months duration, with or without decreased glomerular filtration rate(GFR) less than 60ml/min/72$m^2$, manifests by either pathological abnormalities or other markers of kidney damage, including abnormalities in the composition of blood or urine.[2] The most renal diseases progress to renal failure is a consequence of functional adaptations that occur in the kidney, interstitial fibrosis of glomeruli occur in 80% cases of CKD stage 3. Interstitial inflammation played role in progression of the disease from one stage to another stage. Focal nephrosclerosis, Glomerular Basement membrane(GBM) shrinkage which impairs the microvascular function, tissue oxygenation capacity causes glomerular ischemia in CKD stages 2-4. This results in reduction of sensitive biomarker e-GFR, raised Sr.Creatinine, Sr.Blood Urea,Sr. Albumin. The population who are at the high risk of CRD's had been suffered from Hypertension(HTN), Diabetes Mellitus(DM2) in all developed countries, developing countries and under developed countries.[3]

Although there is no description of CKD in Ayurveda Classics as per disease of *Mutravaha Srotas.* In Ayurveda disease described on pathological parameters these are *Nidan Panchak, Shatakriyakala*. Ideally the pathological components of any disease are *Dosha,*

*Dushya, Srotas, Srotasdusti, Adhishthan, Sadhya-Asadhyata,* state of *Agni* and *Ojas*.[4] This article is an attempt to explain CKD with the help of above Ayurvedic diagnostic tools. It is a collaborative progression of *Rasavaha, Raktavaha, Mamsavaha, Medovaha-SrotasDusti* which deteriorates *Mutravaha Srotas*(deterioration of kidney function) at last and impairs the formation, regulation of *mutra* and its excretion from the body including *Ojas Dusti*.

## MATERIAL AND METHODS

Contemporary modern texts referred are Comprehensive Clinical Nephrology and oxford textbook of Clinical Nephrology and Harrison's principle of internal medicine and Davidson textbook of internal medicine.

| Literary Source | *Sthan* | Aim of Review of Literature |
|---|---|---|
| *Charak Samhita*[5] | *Viman Sthan5* | *Ayurvedic Approach of CKD* |
| *Madhav Nidan*[6] | *Panchnidanalakshana* | *Diagnostic tool for CKD as per Ayurveda* |
| *Charak Samhita*[7] | *Chikitsa Sthan16* | *Samprapti* and *Samprapti vighatna* |
| Comprehensive Clinical Nephrology[8] | - | Elaborate causes, pathogenesis,staging and symptoms of CKD.<br>Diagnostic Criteria of CKD. |
| Oxford Textbook of Clinical Nephrology[9] | - | |
| Davidson textbook of internal medicine[10] | - | |
| Guidelines of CKD by KIDGO criteria[11] | - | |

### Modern aspect of CKD Equivalent to Ayurvedic aspect

Chronic kidney disease (CKD) is an important and increasingly common global health issue within the developed world. Reduced glomerular filtration rate (GFR) and albuminuria are independently and continuously associated with acute kidney injury (AKI), cardiovascular disease (CVD), end-stage renal disease (ESRD), and leads to death. In the current study, estimated prevalence of CKD among adults with diabetes mellitus type2(DM2), hypertension(HTN) documented is 40% to 60% in India and over 2/3 cases accounts in western countries from 2015 to 2020.[12]

Diagnosis and management of CKD requires upto the mark interpretation of symptoms and signs with the assessment of sensitive markers e-GFR,Sr.cr, Sr.urea,Sr.albumin. The development of CKD multiplies the risk of mortality 3times due to various risk factors categorized on the basis of location of damage in the body correlated with of Ayurvedic Nidana which precipitates risk even in individuals at low CKD risk They are.[13]

| | Types | Risk Factors | Ayurvedic Nidana |
|---|---|---|---|
| UREMIA unrelated | Pre-renal | Daibetes Mellitustype2, Hypertension, obesity, Renal stenosis.<br>Anemia, Hyperlipidemia, Bone-Mineral disorders. | Dietary factors Santarpana Hetu *Amla, Lavana, Abhishyandi, Mamsa Ahara, Diwaswap, ViruddhaHetu vishamashan and vegavrodha.* |
| UREMIA related | Intra-renal | congenital or acquired solitary kidney (eg.horse-shoe shape kidney), Glomerular diseases, Polycystic Kidney,Kidney Stones, | *Mutravahasrotasdusti, Mutrakriccha, Mutraghata, Ashmari* |
| | Post-renal | Ureteric and Bladder stones, Benign Prostate Hypertrophy, Prostate Cancer. | *Ashmari, Vatashthila.* |

### Staging of CKD

The defination and classification for CKD is proposed by National Kidney Foundation Kidney Disease Outcomes Quality Initiative (NKF-KDOQI) in 2022 which is endorsed by Kidney Disease Improving Global Outcomes (KDIGO) in 2004.This framework aimed to spread attention towards disease,its severity, diagnosis, prognosis, management in the scientific world. The KIDGO classified the CKD primarily on severity of functional impairment assessed from the level of GFR,sr.cr combined with other parameters cause,symptoms, treatment and prognosis.[14]

| Stages of CKD | e-GFR | Sr.Creatinine | Staging of CKD on the basis of *Shatkriyakala* |
|---|---|---|---|
| G1 | >90 or 90 | 1.3-1.5 | *Sanchayaavastha* |
| G2- G3 | 45-59 | >1.5-2 | *Prakopa and Prasaravastha* |
| G4 | 15-30 | 3.5-4.0 | *Sthanasanshraya and Bhedavastha* |
| G5 | <15 | > 4.0 | *Vyaktavastha* |

According to *Acharya Susruta* diseases are classified on various parameters described as follows in the terms of etiological factors responsible for development and progression of CKD.

| **Modern Classification of causes of CKD** | **Ayurvedic Classification of CKD[15]** | |
|---|---|---|
| Polycystic Kidney<br>Renal Agenesis<br>Renal Dysplasia/Hypoplasia<br>Horse shoe shape Kidney<br>Ectopic Kidney. | *Adhyatmik* | *Adibala Pravritta*<br>(Genetic Mutation) |
| Hypertension(HTN)<br>Diabetes Mellitus(DM II)<br>CVD & Dyslipidemia<br>Metabolic Syndrome | | *Doshabala Pravritta*<br>(imbalance Metabolism) |
| Nephrolisthesis<br>Urolisthasis<br>Acute Kidney Injury<br>Rhabdomyolysis<br>Eclampsia during Pregnancy | *Adibhautik* | *Sanghatabala Pravritta*<br>(Traumatic Cause) |
| Renal Stenosis<br>Glomerular Diseases<br>Tubulointerstitial Necrosis<br>Renal Cysts | | *Kalabala Pravritta*<br>(Obstruction) |
| Family History of CKD | *Adidaivika* | *Daivabala Pravritta* |
| Old age | | *Swabhavabala Pravritta* |

**Aetio-Pathogenesis Of CKD in Modern Aspect**

Progression to chronic kidney disease is relatively common now a days. Most of the forms of progressive renal diseases are glomerular in origin,induces injury in tubulo-interstitial compartment and small extent to glomerular changes results in reduction of renal functions(i.e.reduced e-GFR presence of Proteinuria).

Various factors susceptible to increase glomerular capillary flow and pressure consistently raise urinary flow and leads to poor outcomes. The mediators involve in mechanisms responsible for the progression of disease based on following facts - loss of selective properties, tubulo-interstitial necrosis and tubular inflammation. From Ayurvedic aspect this is the *Sthansanshrayavastha* where vitiated *Tridosha* seated in *Medavahasrotas* develops structural and functional abnormalities.

**Loss of selective properties (*Amavisha* causes *Vyana-Apana vayu vaigynya*)**

Renal diseases progresses to renal failure as a consequence of functional adaptations that occur in the kidney, because of initial loss of nephron units,that results in glomerular hyper-perfusion and hypertension, increased permeability for proteins across glomerular capillary wall and progressive glomerular injury which impairs the selective function. In addition to this, GBM pores exceeds in size and increase filtration of plasma proteins.The accumulation of plasma proteins across GBM undergo renal damage.[16]

*Mutra roga*, *Ruksha-guna* of *vata* change osmolality (Hypotonic urine) of mutra(urine), *Khara guna* of *vata* enhances, roughness, dryness in its own site (*pakvashaya*) develops structural injury in soft tissues, *chala guna* reducing volume of fluid and affects contraction & relaxation of bladder, *laghu guna* of vitiated *vata* reduces compactness of basement membrane, impair the function of podocytes affects the ultrafilteration and decrease e-GFR. It reduces the frequency of urination, frothiness in urine.

**Tubular Inflammation and Fibrosis (*Rakta,Mamsa dhatu dusti*)**

In proteinuric Kidney Disease, progressive inflammation and injury to renal interstitium are the secondary events occurs after glomerular or vascular damages. There is often a loss of peritubular capillaries in area of tubulo-interstitial fibrosis, impairs the tubular oxygen supply causes chronic ischemia and hypoxia. Simultaneously, focal reduction of capillary blood flow leading to the tubular atrophy and loss.[17]

*Ruksh & khara guna* of *Vata dosha*, *ushna,amla & katu guna of pitta* unitedly change the alkaline pH (i.e.*shleshma*) of *Mutravaha sansthan* into acidic which causes inflammation and reduce blood circulation in *Basti* reteroprogressively, involve whole *mutra marga* and develops *mutrakricchta*.The *kala*(mucosal lining) of *Basti* that protects the cells beneath it from urine destroys by *vata-pitta dosha*, simultaneously *vata dosha* raised contractility and stiffness in *Snayu's* of *Basti*(Kidney, bladder)causes irritation,burning sensation with painful urination called *Mutrakricchta*.[18]

**Tubulo-interstitial Necrosis (*AlpaRakta-AlpaMeda-Oja Kshaya*)**

As a consequence of accumulation of proteins, toxic substances in the proteinuric ultrafiltrate promotes inflammatory mechanism in peritubular and tubular cells, activation of vasoactive mediators causes glomerulosclerosis and tubulo-interstitial necrosis.[19]

Due to aggravating factors vitiated *Vata dosha* is lodged due to *pitta* and *kapha dosha. Laghu guna* of vitiated *vata* reduces compactness of basement membrane,

impair the function of podocytes affects the ultrafilteration causes reduction in e-GFR, increase frequency in urine with frothiness raises increase protein loss (*Bahudravatva*).[20] It may results in *meda,mamsa* and *ojas kshaya* which is stored in *vrukka*,excretes out in large volume develops *Atipravritti* type *srotas dusti* in *Mutravaha srotas.*

**Pathogenesis of CKD as per Ayurveda**

The roots of all diseases are *Tridosha's* because of exhibiting their features. As per Ayurvedic Classics, whole disease assessed on the basis of diagnostic tool '*Nidan Panchak*'. *Nidan Panchak* is the fundamental approach to diagnose the disease process.[21] For the disorders who is not explained in classics,physician focuses on manifestation, diagnosis and prognosis of disease to get desired result. In CKD, there is stepwise degradation of metabolism of *Srotas* and *dhatu's* which develops *Srotas dusti* of *Rasavaha Srotas, Raktavaha Srotas, Medavaha Srotas* respectively. The Correlation between above *srotas* describes as-

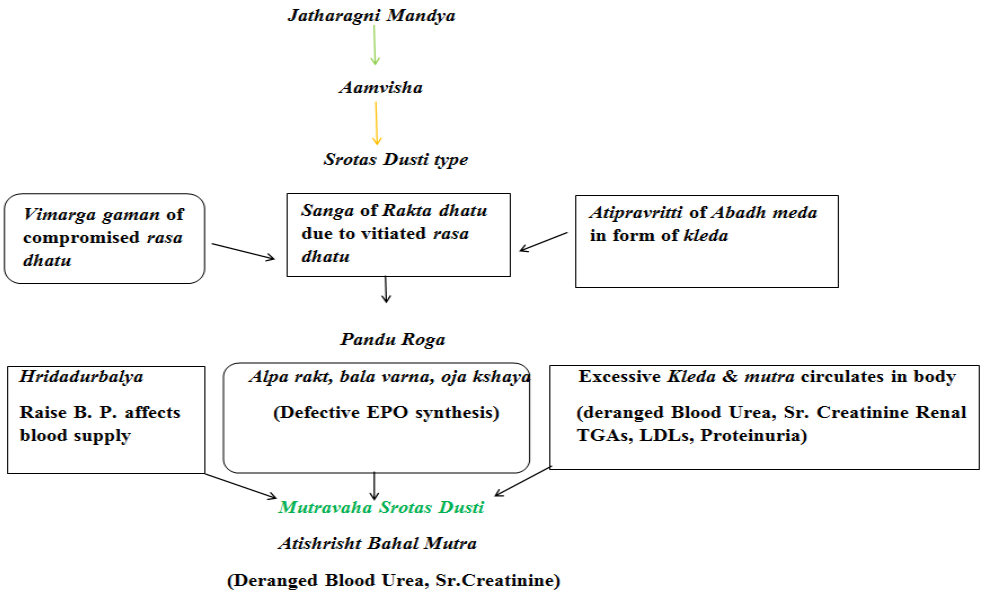
Prolonged practicing of above *Hetu's* disturbed *Agni* produces vitiated *Ahara rasa* called *amarasa*, circulated throughout the body via it's *srotas mula Hridya* and *dasha dhamini's* respectively.[22] In ***Sanchaya avastha* (accumulative state)** *kapha* dominant *amarasa* gradually collected in *Mahasrotas*, causes *sanga* of *rasvaha srotas* and produces clinical features of *rasa dhatu dusti*. *Sanchayaavastha* is a preliminary state of disease where *Samyavastha* (homeostasis) changes.

In CKD, long term B.P. elevation causes microvascular injury in both kidneys. Activation of RAAS prevent the development of hypertension upto extent, after that causes glomerular and tubulo-interstitial injury.[23]

Simultaneously, *dushit rasa dhatu* contaminate the *pitta* seated in *Hridaya pradesh*. When the contamination reaches at its peak, *pitta dosha* expels out and spread all over in body. This is called ***prakopa avastha*(state of Aggravation).** Afterwards, qualitatively compromised *Rasa dhatu* with *pitta dosha* vitiates *Rakta dhatu*. It affects the *bala*(strength), *varna*(lustre), *sneha*(oleation) and other qualities of *ojas, dhatu shathilya (*deranged Hb%). Substantially, which affects the formation of next *dhatu's*.[24]

Similarly, inflammatory condition affects the formation of erythropoetin(EPO) who is responsible for the formation of RBC count in CKD. As a result, individuals have an absolute iron deficiency. Anemia may be the result of kidney failure itself, metabolic and endocrine disorders.[25]

In ***prasaravastha*(expansion state)**, vitiated *kapha dosha* combines with similar *Meda dhatu* changes its texture from *badha meda* into *abadha meda or Kleda*(deranged lipid and protein levels in blood). As a consequence, *abadha meda(Kleda)* excretes out (*Atipravaritti)* in excessive amount(albuminuria) in the end causes oja kshaya.[26] As per *samhita, Vrukka* is the *mula srotas* for storage of *meda dhatu.*[27] The large amount of *Kleda* stored in *Vrukka*(Kidneys), this is called ***sthanasanshraya* (seat of deviated *dosha* and *dushya*)**. In this state, *Dosha-Dushya* get *sammurchita* (blending of toxins) and prepare blanks (*kha: vaigunya*) for renal diseases in future. At the same time *Kleda* drivens towards *mutrashaya* (Urinary Tract) in the form of *mutra* (urine) because of *vahana karma* (regulation of electrolytes through *mutra* and *sweda*) and collected in *basti.*[28] In pathological state, excessive *kleda* obstruct the small channels of *Mutravaha srotas* and develops *Mutravaha srotas dusti*.This is the state of manifest, called ***vyaktavastha* (manifestation state)**, where disease pierce the veil with clinical features.



**Diagnostic approach of Chronic Kidney Disease in Ayurveda**

**Clinical Features**

Often asymptomatic until the advanced stages of disease, CKD has been historically under-recognized by both patient and physician. Previous studies reported various signs develop in the initial stages of CKD helps to diagnose the disease in pre-stages.Various research articles illustrates the role of screening in CKD among certain individuals.[29] CKD classified in stages on the basis of various symptoms and signs which indicates the severity of disease at different stages.

| **Stages of *Shatkriyakala*** | **Manifestation of attributes of CKD in** | | ***Srotas*** | **Stages of CKD** |
|---|---|---|---|---|
| | ***Ayurveda*[30]** | **Modern[31]** | | |
| *Sanchaya* | *Angsada,*<br>*Angmarda*<br>*Krishangta*<br>*Aruchi*<br>*Shwas* | Generalized weakness with Body ache<br>Weight loss<br>Loss of appetite<br>Difficulty in breathing, cough with or without sputum. | *Rasavaha srotas dusti* | Stage I |
| *Prakop* | *Twak parushta, kandu, pandu* | Lusterless, itchy, dry, pigmented skin | *Raktavaha srotas dusti* | Stage II |
| *Prasaravastha* | *Shotha,Trishna* | Swelling on face, ankle region, transient type, thirst | *Udakvaha srotas dusti* | Stage I,II,III |
| | *Pindikodweshatana*<br>*Klama*<br>*Shirshoola*<br>*Anidra* | Cramps<br>Fatigue<br>Headache<br>Sleep disorder | *Mamsavaha srotas dusti* | Stage I,II,III |
| *Sthansanshraya* | *Prameha Poorvarupa* | Increase frequency of urine, frothiness in urine, painful micturation. | *Medavahasrotas (Vrukka)* | StageIII,IV,V |

**Significance of Confirmatory Investigations in CKD as per Modern Aspect**

The uremic syndrome and the disease state associated with advanced renal impairment involve more than renal excretory failure. Chronic kidney disease (CKD) encompasses a spectrum of different pathophysiologic processes associated with abnormal kidney function, is often diagnosed via elevated Sr.cr, reduced e-GFR and abnormal urine analysis.

**e-GFR:** The Kidney has many functions, including excretory, endocrine and metabolic functions.The GFR is one component of excretory function, but is widely accepted as the overall index of kidney function because it is generally reduced after widespread structural damage and most other kidney functions decline in parllel with GFR in CKD. Assessment of GFR continues to be the most useful quantitative index and ideal filtration marker of kidney function. For clinical purpose, using Sr.Cr concentration along with age, gender, weight are more accurate in estimating measured GFR and thus rule out the degree of impairment of kidney functions. The Sr.Cr doubles for every 50% reduction in GFR, so changes in Sr.Cr accelerates renal functional loss.[32]

**Sr.Creatinine:** Creatinine is the waste product that comes from the vigorous muscle activity is filter from the kidneys, hence a key indicator of kidney function. Whenever the kidney function slows, blood levels of creatinine raises but it is a later indicator of impaired renal function i.e.renal function is decreased by 50% before rise in serum creatinine.[33]

**Urine Analysis:** Urine analysis, is used to diagnose the UTI's or kidney diseases in early stages. In CKD, the most important part of urine test is to check the protein in urine. It is a good screening test for early detection of renal disease, in particular, and may be a marker for the presence of micro vascular disease in general.[34]

| **Investigations** | **Stages of CKD** | | | | | |
|---|---|---|---|---|---|---|
| | **G0** | **G1** | **G2** | **G3** | **G4** | **G5** |
| e-GFR | >90 | 60-89 | 45-59 | 30-44 | 15-29 | <15 |
| Sr.creatinine | 1.3-1.5 | >1.5-2 | 2-3.5 | >3.5 | >4 | >4 |
| | A1 | A2 | A3 | | | |
| ACR | 10-29 mg/g | 30-299 mg/g | >300 mg/g | | | |

**DISCUSSION**

Chronic kidney disease (CKD) encompasses a spectrum of different patho-physiological processes associated with abnormal kidney function, and a progressive decline in glomerular filtration rate (GFR). Provides a widely accepted classification, based on recent guidelines of the National kidney foundation {Kidney Dialysis Outcome Quality Initiative (KDOQI)}, in which stages of CKD are defined according to the estimated GFR.[35] The term

Chronic Renal Failure applies to the process of continuing significant irreversible reduction in nephron number, and typically corresponds to CKD stages 3-5. The patho-physiological processes and adaptations associated with chronic renal failure will be the focus. The dispiriting term end-stage renal disease represents a stage of CKD where the accumulation of toxins, fluid, and electrolytes normally excreted by the kidneys results in the uremic syndrome. This syndrome leads to death unless the toxins are removed by renal replacement therapy, using dialysis or kidney transplantation.

Increasing evidence, accrued in the past decades, indicates that the adverse outcomes of chronic kidney disease, such as kidney failure, cardiovascular disease, and premature death, can be prevent or delays. Earlier stages of chronic kidney disease can be detected through laboratory testing. Treatment in earlier stages of chronic kidney disease is effectively slowing the progression toward kidney failure. Initiation of treatment for cardiovascular risk factors at earlier stages of chronic kidney disease should be effective in reducing cardiovascular disease events both before and after the onset of kidney failure.

CKD in Ayurveda, describes as per the manifestation from *hetu,lakshana* and *Samprapti*. *Ayurveda* gives significant as appropriate knowledge of this disease. The fundamental principals related to *Dinachrya, Rutucharya* and the basic drugs are mentioned clearly in texts. Using all this principal the above disease can be treated properly.The *Samprapti* of CKD in *Ayurveda* Classics describes on the basis of *Shatkriyakala* stages.[36] Stage1 & 2 of CKD is asymptomatic i.e.*dosha's* may be in *sanchaya,prakop* or *prasaravstha* where they vitiates the *Rasavaha, Raktavaha, mamsavaha srotas* and produces symptoms like *aruchi,shotha,shwas,krishangta,pandu* at initial level. After that *Dosha-Dushya* get *sammurchita* (blending of toxins) in *Medovaha srotas*(*Vrukka*)and prepare blanks (kha: vaigunya) for renal diseases and in CKDstage3,4 or 5 *mula* of *Medavaha srotas*(*Vrukka)* damaged with symptoms of *Atisrisht mutra*(polyuria), *Alpa mutra*(oliguria), *Bahal mutra*(proteinuria).[37] On the other hand, there is significant changes seen in KFT i.e. kidney get damaged in major proportion and functions of kidney was affected. At different stages of pathogenesis *vata*, *pitta*, *kapha* vitiates due to *Santarpana* and *Aptarpanjanya Hetu's* responsible for collaborative *Prameha, Panduta, Medadusti Lakshana* as *Nidanarthkar Roga* causative for CKD results in *bala, varna, sneha, oja kshaya*.

**Anemia(*Raktalpta*) in CKD[38]**

Previous study illustrates that primary reason of anemia in CKD is deficiency of erythropoiesis(EPO) and second cause is impaired iron absorption. EPO synthesis hampers due to inflammation in tubular interstitial fibroblasts of outer renal medulla and deep cortex of the kidney which severely affects the RBC production. Anemia usually starts in stage 3 where GFR is < 60ml/min/1.72 ㎡.

The *Pandu Roga* can be apparently a *Hetu* and dominantly become a complication of CKD. Pandu is a *Santarpanjanya vikar*,in which vitiated *rasa dhatu* along with *Agni* disturbs *Ansha of rakta dhatu* and deteriorates *bala,varna,sneha,oja* with *Hridyadaurbalya* (HTN & CVD). In chronic phase of *Pandu*, vitiated *Pitta* seated in rasa dhatu go deeper in *mamsa,meda dhatu* leads to *oja kshaya*(Organ failure).

**Dyslipidemia (*Medadusti*) in CKD[29]**

The dyslipidemia in CKD patient comprises primarily high TGA levels and low HDL-cholesterol levels, however, emerging data suggests that the composition of the lipo-protein particles is altered due to abnormal ultrafilteration of toxins in CKD. The effect of Chronic kidney disease show a significant reduction of renal mass results in progressive deterioration of kidney function and structure. In this way, dyslipidemia with CKD results in decrease e-GFR and increase the severity of disease.

**Diabetic Nephropathy(*Prameha)***

Diabetic Nephropathy(DN) is one of the common microvascular complication affect the major diabetic population worldwide. Chronic hyperglycemia contributes to pathological changes like demyelination of nerves, narrowing of neuronal capillaries leads to loss of sensation. Due to affected nerves, symptoms of pain and numbness in legs arises. The neuronal damage attributed to elevation of oxidative stress markers which targets the blood vessels of heart and Kidneys.

In Ayurveda, DN closely resembles with *Prameha Roga*.The *Santarpana hetu Sevana Diwaswap, Abhishyandi, Guru Ahara* etc leads to *kapha & meda dushti;* both contribute for *dushit kleda vruddhi*. This *kleda vruddhi* turns in *mutrabahulya* develops *Prabut avil mutra*. The *Apatarpana hetu* such as *Rooksha, Katu Ahara, Jagarana, Aatapa* etc. leads to *Vata, Meda* & *Kleda dushti* respectively leading to *vrukka dushti* and *mutra dushti*. *Prameha* as *vyadhi hetu, Dushit kleda* leads to changes in *karya* (function) and *Sharir* (structure) of *vrukka*. This leads to deranged function of excretion. So, *Medadusti* is the preliminary stage of initiation of *Prameha roga.*

**CONCLUSION**

The most renal diseases progress to renal failure as a consequence of functional adaptations that occur in the kidney due to pathological changes. There are so many risk factors in the development of CKD such as CVD, Hypertension, Diabetes Mellitus type 2, Obstructive nephropathies. The aetiopathological study of CKD in *Ayurveda* based on *Nidan Panchak* and *Shatakriyakala*. The *Santarpana hetus* individually or in combination with DM2, HT and Anemia, Dyslipidemia, Bone disorders causes further disturbances in the states of

*Tridosha, Rasa, Rakta, Mamsavaha srotas* in *sanchaya, prakopa, prasaravstha* apparently and *Sthanasanshraya* of *Tridosha's* seated in *Medavaha srotas* and *Mutravaha srotas* completely, it expressed itself as *Bahu*(multi) *srotas* disorder. In CKD probably, *Lakshana sammuchya* is a diagnostic tool assessed at different stages as per *Ayurveda* rather than GFR estimation parameter as mentioned in modern medicine. At different stages of *Shatkriyakala vata, pitta, kapha* vitiates due to *Santarpana* and *Aptarpanjanya Hetu's* responsible for collaborative *Pandu, Medadusti, Prameha Lakshana* as *Nidanarthkar Roga* results in *bala, varna, sneha, oja kshaya* .All these *Nidanarthakar Roga* explained in Ayurveda develops in different stages of CKD that's the reason Chronic Kidney Disease show similarity with *Pandu Roga*.

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