

## Efficacy of *Ayurvedic* Formulation in Dyslipidemic Chronic Kidney Disease- A Case Study

Shushma Upadhyay<sup>1\*</sup>, Yogesh Kumar Pandey.<sup>2</sup>

<sup>1</sup>M.D. Scholar, <sup>2</sup>Associate Professor, Dept of Kayachikitsa, Ch.Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, New Delhi-110073, India.

### ABSTRACT:

Chronic kidney disease (CKD) is defined as structural and functional abnormalities of the kidney present for at least 3 months, with or without decreased glomerular filtration rate (GFR), including abnormalities in the composition of blood or urine. As CKD progresses, metabolic abnormalities may occur, and CVD is the leading cause of death. This may lead to atherosclerotic changes in the arteries supplying the heart, reflected through deranged lipid levels and adversely affecting renal function. In the present case study, a hypertensive patient aged 56 years with a history of myocardial infarction (MI), fatty liver disease (FLD) Grade II, and prostatomegaly had abnormal renal functions with reduced GFR, raised serum creatinine, and deranged total cholesterol (TC) and sr. triglycerides (TGAs), hence being later diagnosed with CKD. The combination of *Gokshurak Churna* (GC) and *Trinpachmula Kwath* (TK) is prescribed with *Arogyavardhini Vat* (AVT). At the end of three months of the treatment with the above intervention, there is a significant reduction in Sr.Cr from 2.08 mg/dl to 0.75 mg/dl, Sr. uric acid from 6.7 mg/dl to 5.3 mg/dl, TC from 233 mg/dl to 193.0 mg/dl, and Sr.TGA's levels from 166.0 mg/dl to 69.0 mg/dl, which increases the estimated GFR from 37 ml/min/1. The extent of FLD changes from grade II to grade I. During the whole treatment, the patient's B.P. remains under control. The combination of GC and TK with AVT is a good intervention to treat CKD patients with dyslipidemia. This is effective in reducing the progression of disease, restoring the functions of the kidneys, and improving the quality of life of the patient.

**KEYWORDS:** *Arogyavardhini vati*, Chronic Kidney Disease(CKD), Dyslipidemia, *Gokshura Churna*, *Trinpanchmula Ksheerpaka*.

Received: 04503.2023 Revised: 25.05.2023 Accepted: 30.05.2023 Published: 16.06.2023

### Quick Response code



### \*Corresponding Author:

**Dr. Shushma Upadhyay**

M.D. Scholar, Dept of Kayachikitsa, Ch.Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, New Delhi  
Email: [shushmaupadhyay3@gmail.com](mailto:shushmaupadhyay3@gmail.com)

### INTRODUCTION:

The incidence of Chronic Kidney Disease (CKD) are increasing all over the world and are associated with poor outcomes in which dyslipidemia is a common complication of CKD in the general population. Large scale

studies shown that low HDL, high TC, high TGA's and high LDL further leads to atherogenic diasthesis and possibly declines the glomerular filtration rate (GFR) because of various deranged lipid metabolism. Patients with CKD usually have

Hypertriglyceridemia due to an increased concentration of TGA-rich lipoprotein. On the other hand, decreased lecithin cholesterol acyltransferase activity reduces protective function of HDL. [1] As a result accumulated uremic toxins, high oxidative stress and chronic micro-inflammation increases atherosclerotic changes in renal micro vasculature and worsens the condition of CKD patient. Similarly Ayurvedic classics illustrates the *Badha Meda* (Adipose Tissues) and *Abadh Meda* (raised TGA's, TC ) which circulates in whole body through *Vayan vayu* and excretes out the metabolic wastes via *Apan Vayu*. Altered *Agni* upraise the *Drava Meda* in excessive amount and transforms into *Kleda*. The *kleda* portion of *Meda dhatus* causes *Medavaha srotas dusti*. [1] The *Mula* of *Medavaha srotas* is *vrukka* which stores (*vahan*) unwanted *Kleda* transforms into *Mutra*, *Sweda* and excretes out (*dharan*) through *Basti*. [2] The *poshan*, *vahan* and *dharan karma* affects due to defective *Rasavaha*, *Medavaha* and *Mutravaha srotas* further leads to *Mutravaha srotas vikar*. In the present case, subject suffered from collaborative relay of *Rasavaha*, *Medavaha* and *Mutravaha srotas dusti*. The patient is hypertensive had history of MI which illustrates defective *Rasavaha srotas* because *Hridaya* and *Dasha dhamani's* are the *Mula* of *Rasavaha srotas*. [3] *Dushit rasa* circulates throughout the body, retards the formation of next *dhatu* and increases the *dusht kapha & meda dhatu* (*ashraya-ashrayi bhav*) in body. *Abadh meda* affects the *vrukka* and finally leads to *mutravahasrotas dusti*.

## CASE REPORT

A Patient of age 56yrs with no job, who has history of HTN since 5yrs and MI 1yr ago, is on regular anti-hypertensive amlodipine 5mg BD came to out patient department of Kayachikitsa.

Along with localized pain his concerned is difficult to urinate in morning hours with mild frothiness since 2months. He also reported that flow and amount of urine was decreased during voiding. Patient seeks relief for decreased stream and amount of urine with frothy appearance.

Associated complaint of abdominal distension after meal, irregularly regular constipation, weight gain since 3months.

A patient complained mild, dull ache in the left flank region non-radiating in nature 3 months ago which is aggravated on active movements. Simultaneously, patient faces difficulty in urination mainly in morning hours and decreased urine flow, amount of urine with mild frothy appearance. He had associated complaint of abdomen distension and irregular bowel habits last 3months.

Patient was diagnosed with prostatomegaly and Grade II Fatty Liver Disease. He had known complaint of hypertension (HTN 140/100mmHg) since 5 yrs and take anti-hypertensive drug Telmakind 40 bis a day. He had past H/o of MI.

## Clinical Findings:

### General Examination :

Patient was obese, weight 80 kg, height 5'6" and BMI 29.kg/m<sup>2</sup> but well nourished (take food having adequate amount of vitamins, minerals and other essential nutrients). Blood pressure (B.P.) 160/100mmHg, Pulse Rate 78/min, transient type of oedema present on both ankle region no clubbing, cyanosis, icterus.

**Diagnostic Protocol:** On the basis of symptoms like *Atibadha*, *Alpa*, *Bahal mutra* associated with *Aruchi*, *Mukhvairasya*, *Gauravta*, *Shithilangta*, *Pandutvam* indicates *Rasa, Meda Dhatu Dusti* reflects through *Mutravaha srotas dusti* which is clinically assessed by *Ashtavidha Pariksha* (Eight Fold Examination).

On the basis of modern sign and symptoms with investigations like KFT (Sr.cr, Sr.urea, Sr.uric acid), Lipid Profile (total cholesterol, Triglycerides) provisionally diagnosed as CKD with Dyslipidemia. On the basis of diagnosis treatment protocol was designed.

#### THERAPEUTIC INTERVENTIONS:

After complete screening of patient and consent taken, on the basis of above findings patient was provisionally diagnose with CKD. Therefore, KFT profile (Sr.cr. 2.02mg/dl, reduced e-GFR 37ml/min/172m<sup>2</sup>), urine routine & microscopic received on July 30, 2022 from the patient was confirmed CKD, then drug intervention started. The patient was treated on the line of management of *Mutrakriccha Chikitsa*. The drugs selected

for treatment was *Gokshurak Churna* with *Trinpachmula Ksheerpaka* indicated as drug of choice in *Mutrakriccha Chikitsa*. In next visit (after 15 days from drug intervention) diet and life style advised to patient to improve quality of life.

After follow up of 15 days, patient come with complaint of shortness of breathing, Frothiness in urine but no retention during urinate, frequency of urine is normal (6 to 8 times/24hrs). Confirmatory investigations KFT profile, Lipid Profile and Ultrasound of whole abdomen is advised. USG received on Aug 28, 2022 illustrates no changes in Fatty Liver Grade II, prostatomegaly.

In next visit, patient came with deranged TC 233 mg/dl, TGA's 166.8mg/dl received on Sept. 7, 2022, hence patient diagnosed CKD with complication of dyslipidemia. The drugs selected above continue as drug intervention with addition of *Arogyavardhini vati* in the regime for 21 days. After that in place of *Arogyavardhini vati* Lipistat is added as hypolipidemic supplement drug.

**Table-1: Ashtavidha Parikshana.**

| NADI PARIKSHA  | KAPHAJA-VATAJA  |
|----------------|---|
| <i>Mala</i>    | <i>Vikrit</i> (hard, non sticky, yellowish in color).             |
| <i>Mutra</i>   | <i>vikrit-phenayukt</i> (decreased amount with frothy appearance) |
| <i>Jivha</i>   | <i>Malavrit</i> (white coated)                                    |
| <i>Shabda</i>  | <i>Prakrit</i>  |
| <i>Sparsha</i> | <i>Snigdha</i>  |
| <i>Drishti</i> | <i>Prakrit</i>  |
| <i>Akriti</i>  | <i>Vikrit-sthaulya</i> (obese)                                    |

**Table-2: Drug administration with dose, frequency and Anupana.**

| Drug Intervention                | Dose     | Frequency   | Anupana        |
|----------------------------------|----------|---|----------------|
| <i>Gokshurak churna</i>          | 5gm BD   | Twice daily after 2hrs of breakfast and after meal        | Lukewarm water |
| <i>Trinpanchmula ksheerapaka</i> | 50ml BD  | Empty stomach in morning and 2hrs after lunch in evening. | -              |
| <i>Arogyavardhini vati</i>       | 1tab TDS | Before breakfast,<br>before lunch,<br>before dinner.      | Lukewarm water |

**Table.3: Timeline of Events.**

| Duration                | Particulars and Interventions   |
|-------------------------|---|
| July18,2022             | Patient is diagnosed with CKD for the time with prostatomegaly grade I, FLD grade II.   |
| July30,2022             | Visited Ayurvedic hospital first time.Detailed history of patient was taken and examined in the OPD of Kayachikitsa.  |
| July30,2022             | After complete screening of patient and consent taken, patient was treated on the line of management of <i>Mutrakriccha Chikitsa</i>  |
| Aug1,2022               | <i>Gokshurak Churna</i> with <i>Trinpachmula Ksheerpaka</i> was selected .  |
| Sept7,2022              | In next visit, Patient came with deranged lipid profile.  |
| Sept7,2022              | Above drug intervention was continue with addition of <i>Arogyavardhini vati</i> in the regime for 21 days  |
| Sept7,2022 to Dec9,2022 | At the end of three months of drug intervention,significant reduction in Sr.Cr from 2.08 mg/dl to 0.75mg/dl, Sr.uric acid from 6.7mg/dl to 5.3mg/dl, TC 233mg/dl to 193.0mg/dl and Sr.TGA's levels 166.0mg/dl to 69.0mg/dl and increases estimated GFR 37ml/min/1.732m <sup>2</sup> to106ml/min/1.732m <sup>2</sup> .The extent of FLD changes from grade II to grade I |

**Table-4: Diet regime for CKD.**

| Items      | Quantity               | <i>Pathya</i> (Wholesome)   | <i>Apathya</i> (Wholesome)                           |
|------------|------------------------|---|--|
| Vegetables | ≥50-60gms<br>1-2 bowl  | Carrot,okara(bhindi),turnip,<br>Bottleguard, bittergourd.<br>Boiled potatoes,cauliflower. | Spinach,cucumber,tomatoes,garlic<br>mushroom,sprouts |
| Fruits     | 1 daily                | Apple,pear,papaya,guava.  | Banana,litchi,coconut,oranges,kiwi<br>Pineapple      |
| Cereals    | 100gms-<br>250gms/1cup | Boiled rice, pulses like<br>moong, masoor, arhar dal.                                     | Rajma, black grams, chana dal, mash<br>dal.          |
| Dairy      | Milk 50-               | Tone free   | Curd,yoghurt,cheese,condensed                        |

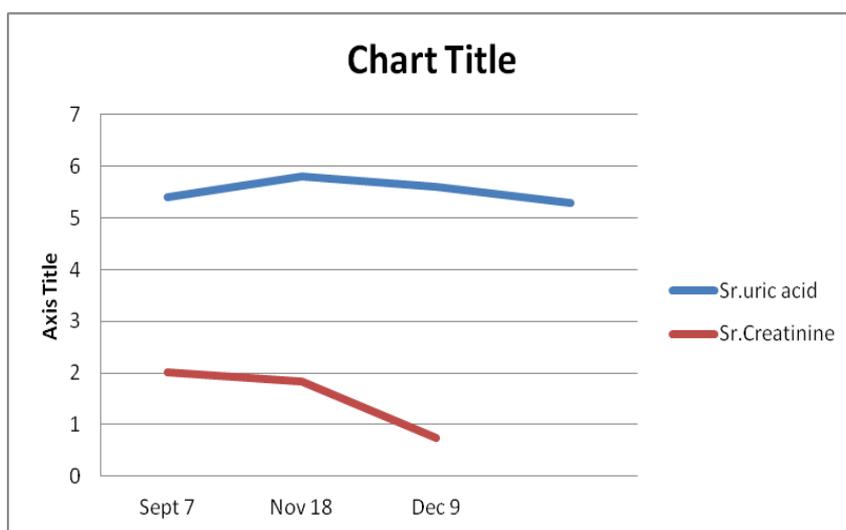
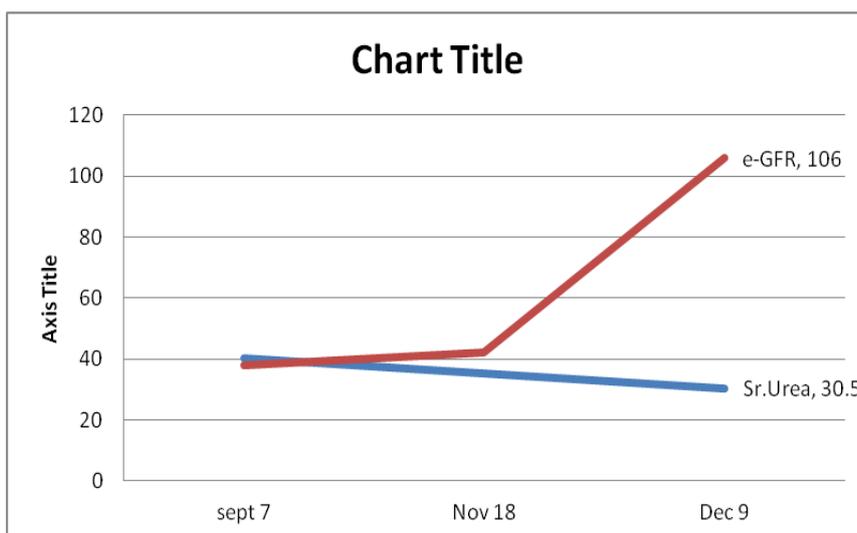
|          |                      |  |  |
|----------|----------------------|--|--|
| Products | 60ml,paneer<br>50gms | milk,paneer,boiled eggs.                         | milk,butter.                               |
| Others   | use in<br>vegetables | ghee,mustard oil,olive oil<br>Almonds,date palm. | Palm oil,coconut oil, Almonds,date<br>palm |

**Table-5: Assessment of Subjective Criteria:**

| Clinical Features      | Grading                                     |                        | BT                         | AT                         |                            |                            |                            | Relief        |
|------------------------|---|------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------|
|                        |   |                        |                            | 30 july                    | 28<br>aug                  | 7sept                      | 18<br>nov                  |               |
| Urgency                | 5times a wk<br>4 times in days<br>5imes/day | 0<br>1<br>2            | 1                          | 1                          | 0                          | 0                          | 0                          | 100%          |
| Frequency<br>of urine  | 10-14<br>7-8<br><7                          | 0<br>1<br>2            | 2                          | 2                          | 1                          | 0                          | 0                          | 100%          |
| Frothiness<br>in urine | Absent<br>Mild<br>Moderate<br>Severe        | 0<br>+1<br>++2<br>+++3 | 2                          | 1                          | 1                          | 1                          | 0                          | 50%           |
| Oedema                 | No edema<br>Transient<br>Persistent         | 0<br>1<br>2            | 1                          | 1                          | 0                          | 0                          | 0                          | 100%          |
| Dysponea               | Grade 0<br>1<br>2                           | 0<br>1<br>2            | 1                          | 1                          | 1                          | 0                          | 0                          | 75%           |
| Weight                 |   |                        | 80kg                       | 80kg                       | 79.54kg                    | 79kg                       | 78kg                       | Reduce<br>2kg |
| BMI                    |   |                        | 29.39<br>kg/m <sup>2</sup> | 29.39<br>kg/m <sup>2</sup> | 29.22<br>kg/m <sup>2</sup> | 29.02<br>kg/m <sup>2</sup> | 28.65<br>kg/m <sup>2</sup> | Improved      |

**Table-6: Improvement in Objective Criteria.**

| Investigatory Methods | Sept 7,2022                 | Nov 18,2022                 | Dec 9,2022                   |
|-----------------------|-----------------------------|-----------------------------|------------------------------|
| Sr.Creatinine         | 2.02mg/dl                   | 1.84mg/dl                   | 0.75mg/dl                    |
| e-GFR                 | 37ml/min/1.72m <sup>2</sup> | 42ml/min/1.72m <sup>2</sup> | 106ml/min/1.72m <sup>2</sup> |
| Sr.Urea               | 40.2mg/dl                   | 35.1mg/dl                   | 30.5mg/dl                    |
| Sr.uric acid          | 5.4mg/dl                    | 5.8mg/dl                    | 5.6mg/dl                     |
| Total Cholesterol     | 233mg/dl                    | 252mg/dl                    | 239.4mg/dl                   |
| Triglycerides         | 166.0mg/dl                  | 153.8mg/dl                  | 166.8mg/dl                   |


**Figure 1. Improvement in Sr. uric acid, Sr. Creatinine, AT of 3 months intervention**

**Figure 2. Improvement in e-GFR, Sr. urea, AT of 3 months intervention**

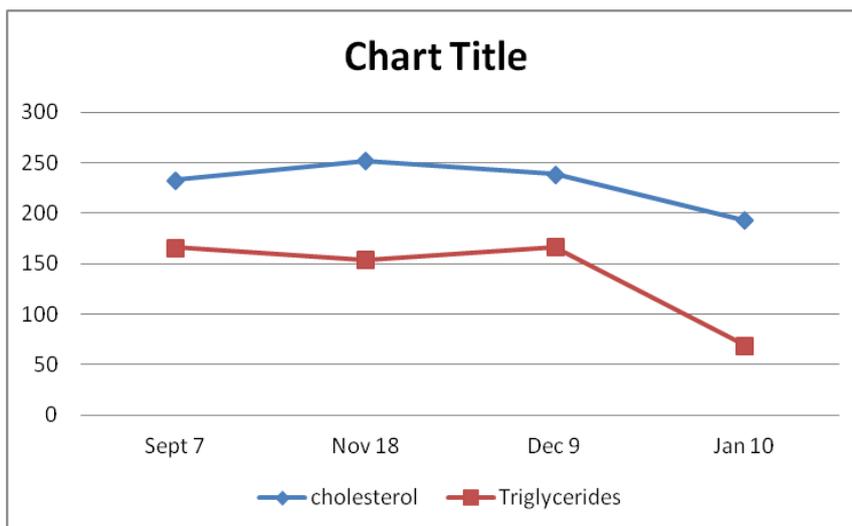


Figure.3. Improvement Sr. Cholesterol, Sr. Triglycerides.

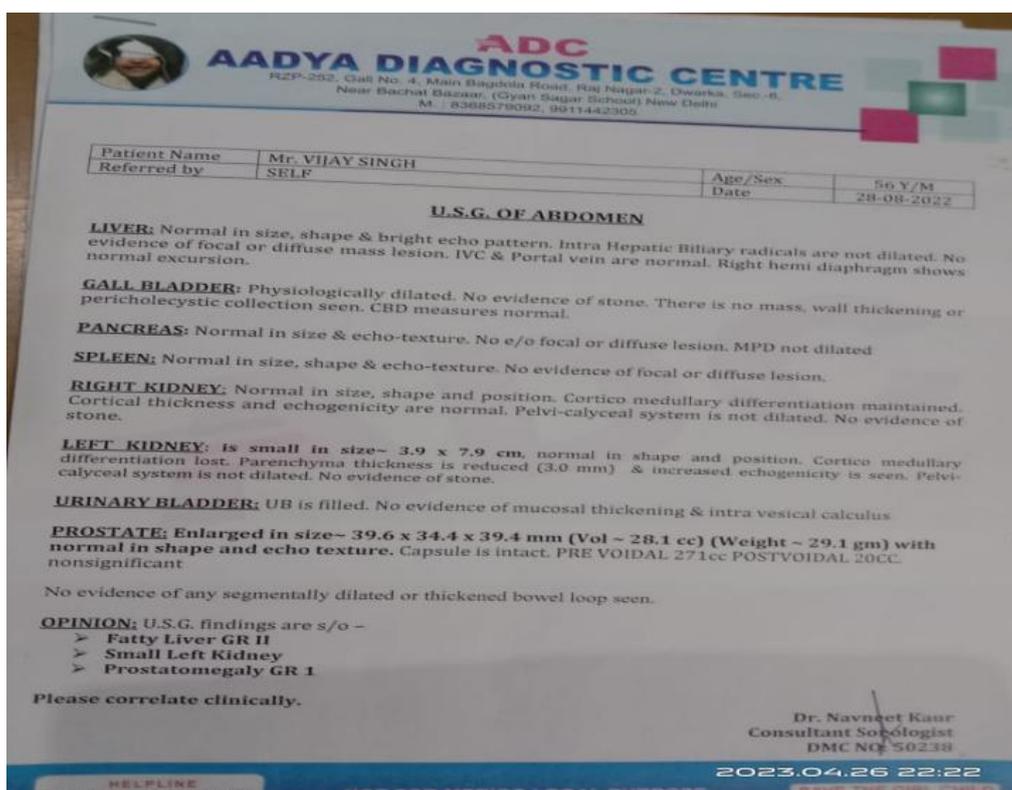
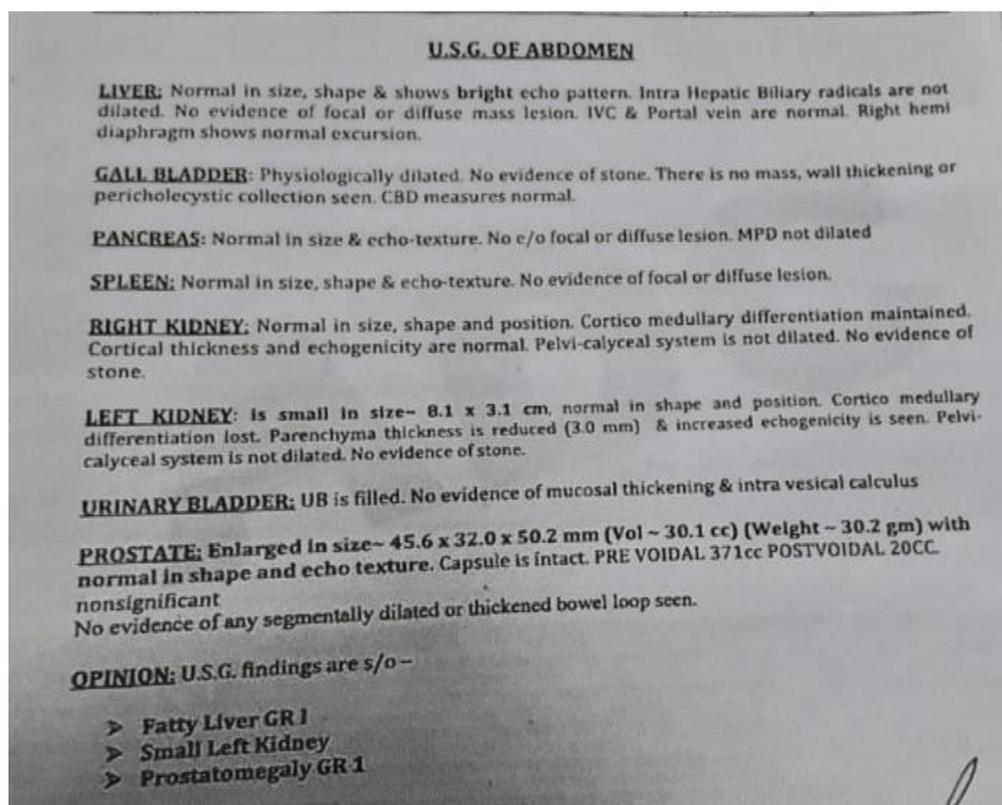


Figure.4. USG Abdomen BT FLD Grade II



**Figure.5. USG Abdomen with changes to FLD Grade I AT.**

#### DISCUSSION:

In the present case report patient comes with complaint of mild pain in left lateral region since three months. Patient had history of MI, FLD grade II with prostatomegaly. After screening of patient, symptoms of *Mutravahasrotas dusti* is present with deranged KFT. Urine analysis confirms the presence of albumin protein in urine (Albuminuria). Hence, symptoms & investigations confirm the CKD (*Mutravahasrotas Dusti*) and treat the disease on the line of management of *Mutrakriccha*.<sup>□</sup> We found that after 3 months of drug intervention Sr.Cr reduces, e-GFR raised with positive improvement in deranged Lipid profile with significant relief in *Mutravaha srotas dusti lakshna*. B.P. maintain at normal range with healthy weight reduction. USG show Fatty Liver Grade I from Fatty Liver Grade II and prostatomegaly Grade I remain same.

All the drugs use in the treatment of dyslipidemia in CKD patient directly improves cellular uptake via enhancing *dhatvagni* at microscopic level, reduce oxidative stress because have anti-oxidant *Aamvishahara* property. *Snigdha, Mraduguna* increase the blood circulation around glomeruli capillaries which strength, softness and decrease roughness i.e. fibrosis or atherosclerotic changes. These drugs are good immunomodulators also.

In *Gokshurak Rasayana*, *Gokshur* is the major component of *Mutravirechaniya Mahakashaya* a class of drugs, suppose to be act as *Mutrala* (Diuretics) which helps in increasing urine formation at micro level (from functional unit Nephron) as well as *Basti Shodhak* due to cleansing of *Srotas marga*, reduces the unwanted, excessive secretions in *Mutravaha srotas marga* hence effective in *Mutrakriccha*, *Mutraghata* & *Ashmari*.<sup>□</sup> It increases the frequency,

regulates decreased flow of urination, frothy appearance of urine is also reduced. Simultaneously, the main reason to select the *Trinpanchmula Kwath* was that all drugs *Kush, Kasha, Shara, Darbha, Ikshu* comes under *Mutravirechaniya Mahakashaya* suppose to act as *Mutrakricchahara Pitta-vatashamak* and *Basti shodhak*.<sup>[9]</sup> Along with that due to *Pittahara* property it reduces 'Daha'guna in the body. In modern science, pharmaceutical study reveals that *Trinpanchmula kwath* have been anti-microbial, anti-inflammatory properties with free radical scavenging activity.

Previous studies also illustrates that CKD was correlates with *Vata-pradhana Tridoshaja vaydhi* in which *Kupitadosha* affects the *mutramarga* and situated in *basti* presenting with the symptoms of *Mutravaha srotas dusti*. The drugs used in the management are *Tikt, Kashaya rasa pradhana* act as *Shothahara* and *Mutrala*(diuretics). Simultaneously,  $\beta$ -setasterol is the one of the active constituent present in the herbs which metabolizes the cholesterol mechanism and has anti-inflammatory effect. *Arogyavardhini vati* is a herbo-mineral preparation contain *Triphala* are being validated scientifically. Research studies found that it is potentially effective in appetite stimulation, good anti-oxidant, anti-inflammatory in action.<sup>[9]</sup> It increases the human gut microbiome and inhibits the growth of unwanted endo and exotoxins. As a immunomodulator animal studies states *Triphala* protected against stress induced disorders which causes biochemical changes such as lipid per oxidation. *Triphala* decrease the TC, TGA, LDL.<sup>[10]</sup> So, *Arogyavardhini vati* reduces inflammation of spleen, liver, kidneys, bladder.<sup>[11]</sup>

#### CONCLUSION:

Patient with CKD present a challenge to the Physician because these individuals have a high burden of cardiovascular risk factors in addition to dyslipidemia. Many recently published studies indicates that dyslipidemia in chronic kidney disease patients may actively participates in the progression of CVD and causes deterioration of kidney function. The above case report illustrates the relationship between the lipid derangement and worsening of renal outcomes occurring in patients of chronic kidney disease. This study reveals the efficacy of an *Ayurvedic* formulation, *Gokshurak churna* with *Trinpanchmula Kwath* give significant improvement in Sr.cr 2.08mg/dl to 0.75mg/dl, e-GFR raised from 37 to 106 ml/min/1.72 m<sup>2</sup>. Simultaneously *Arogyavardhini vati* reduces TC from 233mg/dl to 193.0mg/dl, Triglycerides from 166.0mg/dl to 69.0mg/dl and helps in preventing progression of disease.

#### Acknowledgment:

We would like to thank the patient, who consented to have his case presented and published.

#### Written consent of patient:

The consent was signed by the patient and the original article is attached with the patient's chart.

#### REFERENCES:

1. Sarnak Mj, Levey AS, Schoolwerth AC, Coresh J, Culeton B, Hamm LL, McCullough PA, Kasiske BL, Parfery P, Pfeffer M, Wilson PW: Kidney Disease as a risk factor for Development of Cardiovascular disease: a statement from the American Heart Association Councils on Kidney in Cardiovascular

- Disease, High Blood Pressure Research, Clinical Cardiology, and Epidemiology and Prevention. *Circulation* 2003;108,2154-2169.
2. Sastri Pt Kashinath, Chaturvedi Gorakhanath, Caraka Samhita of Agnivesa, Viman Sthan, Varanasi, Chaukhamba Bharti Academy; 2016, p-711.
  3. Acharya Yadavji Trikamji, Caraka Samhita of Agnivesa with Ayurvedadipika Commentary of Cakrapanidatta, Chikitsa Sthan, Varanasi, Chaukhamba Sanskrit Pratishthan; 2013, p-217.
  4. Sastri Pt Kashinath, Chaturvedi Gorakhanath, Caraka Samhita of Agnivesa, Viman Sthan, Varanasi, Chaukhamba Bharti Academy; 2016, p-711.
  5. Sastri Pt Kashinath, Chaturvedi Gorakhanath, Caraka Samhita of Agnivesa, Viman Sthan, Varanasi, Chaukhamba Bharti Academy; 2016, p-714.
  6. Shastri Pt Kashinath, Chaturvedi Gorakhanath, Shastri Pt Rajeshwardatta, Caraka Samhita of Agnivesa, Sutra Sthan, Varanasi, Chaukhamba Bharti Academy; 2016, p-8.
  7. Sastri Brahms Shankar, Yogratnakar, Varanasi, Chaukhamba Prakashan; 2017, p-52.
  8. Rachana MS, Totad M, Girish KJ, Vasantha B, Powar Vibhu, Ayurvedic management of Chronic Kidney Disease : A Case Report. *J Ayurveda Integr Med Sci* 2019;285-290.
  9. Peterson CT, Denniston K, Chopra D, Therapeutic Uses of Triphala in Ayurvedic Medicine, *J Altern Complement Med.* 2017, Aug 23(8). P-----
  10. Anantha Krishnan.S & KrishnaKumar.K.M: Medodusti in Ayurveda wsr Dyslipidemia-A conceptual Review. *International Ayurvedic Journal*, 2022. <http://www.iamj.in>. ISSN 2320-5091.
  11. Dasi Padmaja, T Maheshwar, DANuradha, Ch VS Koteswar Rao, *Arogyavrdhini Vati*-A Boon for Liver Disorders from Ayurveda (Fatty Liver), *AYUSHDHARA: Vol 8, Issue 4: July - Aug 2021.*

**Conflict of interest:** Author declares that there is no conflict of interest.

**Guarantor:** Corresponding author is guarantor of this article and its contents.

**Source of support:** None

**How to cite this article:**

Upadhyay S, Pandey YK. Efficacy of Ayurvedic Formulation in Dyslipidemic Chronic Kidney Disease- A Case Study. *Int. J. AYUSH CaRe.* 2023;7(2):121-130.