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EFFECTIVE AYURVEDIC MANAGEMENT OF CHRONIC KIDNEY DISEASE – A CASE STUDY

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ABSTRACT

Renal failure causes a significant rise in the serum creatinine level, serum urea level, fluctuation in serum potassium and high sodium level in the blood. In 2017, 1.2 million deaths of CKD (chronic kidney disease) were reported world widely. Kidney transplant, peritoneal dialysis and hemodialysis are some modern methods used to treat renal failure in allopathy. These therapies and treatment are very expensive and unaffordable by the people of low income and middle-income countries. In India, Ayurveda is a conventional practice which is used since ancient times to treat number of disorders without any side effects. A case report of renal failure patient using Ayurvedic treatment is well defined here. A 47-year-old married, non-alcoholic, non-smoking male diagnosed with renal failure presented in the National Institute of Ayurveda and Hospital, Jaipur, in march 2021. The patient was clinically assessed by *ashtha vidh Pariksha*. Patient was administered with Ayurvedic medicines for the duration of nine months of treatment. Patient was investigated for the functioning of kidney and hemoglobin before and after Ayurvedic treatment which indicated an improvement in urea, creatinine and uric acid level, the case study it is shown that chronic kidney disease can be managed by using Ayurvedic treatment.

KEYWORDS: Chronic Kidney Disease, *Ayurveda*, *Vrika-vikara*, dialysis.

INTRODUCTION:

Renal failure is a kidney disorder which is caused by a significant reduction in the GFR (glomerular filtration rate)[1]. It is a burning issue and the most undocumented cause of premature mortality in middle and low-income society. Renal failure marker is significant rise in the creatinine level, urea nitrogen, fluctuation in serum potassium and high sodium level in the blood. In 2017, 1.2 million deaths of CKD were reported world widely. Globally, the all-age mortality rate has increased to 41.5% from 1990 to 2017[2]. The factors responsible

for renal failure are imbalance diet, nephrotoxic drugs like NSAID, HTN (hypertension), diabetes etc. In India, the primary cause of both acute and chronic kidney disorder are environmental pollutants and toxins [2].

In southern and eastern states of India, the rate of renal deaths was highest in 2010-2013. The most prominent age group was 45-69. The other diseases associated which significantly increased the rate of renal failure deaths were hypertension, diabetes (strongest cause of renal failure) and cardiovascular disorders. A significant rise in the mortality rate from the year 2000 to 2019 has been noticed i.e., 813,000 to 1.3 million. As per WHO, chronic kidney disorder is rated as the 10th leading cause of death in 2020[3]. In the forthcoming years, it is estimated that CKD will be the fifth leading cause of death by 2040[4]. It was reported that, nearly 2.5 million people are taking renal replacement therapy and is predicted to exceeds up to 5.4 million by 2030[5]. Kidney transplant, peritoneal dialysis and haemodialysis are some modern methods used to treat renal failure in contemporary science. These therapies and treatment are very expensive and unaffordable by the people of low income and middle-income countries. In India, *Ayurveda* is a conventional practice which is used since ancient times to treat number of disorders without any side effects. Chronic kidney disease is featured with *Mutraghat/Aama* in *Mutra vaha strotas* (obstructive and suppressive uropathies) which hampers the kidney function as per *Ayurveda*. This disease is generated due to imbalance in the three *Doshas* of the body i.e. *Vata, Pitta* and *Kapha*. *Ayurveda* believes in holistic approach. There is limited evidence or data available which suggests the effective use of Ayurveda in the treatment of Kidney failure, besides various Ayurvedic practitioner claims that renal failure can be treated with traditional medicine. A case report of renal failure patient using Ayurvedic treatment is well defined.

Patient information

A 47 year old married, non-alcoholic, non-smoking and non-hypertensive male patient reported first time in the Kriya Sharir department OPD No. 3 of National Institute of Ayurveda and Hospital, Jaipur on dated16 march 2021 as a previous diagnosed case of **(CKD),** with symptoms like difficulty in micturation, itching all over body, swelling on face and feet, indigestion, constipation, fatigue and weakness, loss of appetite, Vomiting, Gaseous upset, gradual weight loss, disturbed sleep, etc were his chief complaints. The patient was suffering from these symptoms from the past 2-3 years. He was diagnosed and renal failure from last 2-3 years. Pulse rate was 88/minute, blood pressure was 130/70 mmHg, afebrile and respiration rate was 22/minute, haemoglobin was 13.3 gm/dl. The patient was on allopathic medication but didn't get relief. Even the patient was advised for weekly dialysis for which he refused and approached to National Institute of Ayurveda and Hospital for its Ayurvedic management.

Clinical findings

Patient gradually developed itching all over body. After 2-3 days he noticed swelling on face and feet, indigestion, constipation, fatigue and weakness, loss of appetite, Vomiting, Gaseous upset, gradual weight loss and disturbed sleep. Patient with these complaints consulted to NIA OPD (OPD Registration No. 78610 National Institute of Ayurveda, Jaipur). Previous patient get diagnosed as renal disease then accordingly the treatment was started at district hospital.

Patient's systolic and diastolic blood pressure was recorded as 130/70 mm Hg with pulse rate of 88/minute, oxygen saturation level was 97-100 %.

Clinical Assessment

The patient was clinically assessed

Mala (~Stool) 1-2 times in day, not satisfactory, *Mutra* (~Urine) 7-8 times in day, 0-2 times in night and less quantity, *Shabda* (~Speech) *Spashta* (~clear) *Sparsha* (~Touch) *Ruksha*, *Drika*(~Eyes) *Samanya* and *Akriti* (~Built) *Madhyama*.

Dashvidh Pariksha (ten folds examination) having *Prakriti* (~physical constitution) *Vata pitta prakriti*, *Vikriti* (~state of disease) *Tridoshaja,mutravaha srotas and meda dushti*, *Sara* (~excellence of tissues) *Madhyam sara*, *Samhanana* ~(body compactness) *Madhyam samhanna*, *Pramana* (~measurements of body parts) *Madhyam praman*, *Satva* (~mental constitution) *Avara sattva*, *Aharashakti* (~digestive capacity) *avar*, *Vyayamashakti* (~capacity to exercise) *Avara* (~poor), *Vaya* (~age) *Madhyam avastha*, *Bala* (~strength) *Madhyam.*

Samprapti:

- *Dosha* (deranged regulatory functional factors of the body):-*Pitta* and *Vataprakopa*
- *Dushya* (deranged major structural components of the body):-*Rakta* and *Medadusti*
- *Sthana* (site of localization):-*Yakrut*and*Vrukka*
- *Agni* (digestive/metabolic factors):-*Mandagani*
- *Srotas* (structural or functional channels):- *Medovahashrotas* and *Raktavahashrotas*
- *Avastha* (stage of disease):-*Jirnaavastha*
- *Rogamarga*(pathway of disease manifestation):-*Abhyantarmarga*
- *Sadhyaasadhyata* (prognosis):-*Ashadhya-yapyaAswastha*
- *Sara* (excellence of tissues):-*Madhyam sara*
- *Samhanana*(body compactness):-*Madhyamsamhanna*
- *Pramana* (measurements of body parts):-*Madhyampraman*
- *Satmya* (homologation):-*Avrasatmya*
- *Sattva* (mental constitution):-*Avara sattva*
- *Aharashakti*(capacity to ingest food and capacity to digest and assimilate the food):-*Madhyam*
- *Vyayamashakti* (capacity to exercise):-*Avara* (poor)
- *Vaya* (age):-*Madhyamavastha*

Diagnostic focus:

Liver is hypo echoic per portal cuffing present, bilateral kidney is echogenic with poor cortico-medullary differentiation and relatively small sized Right kidney. Computerized Tomography Scan with High Resolution Thorax shows multiple fibrotic bands in right middle and lower lobe of kidney and left upper and lower lobe. Abdomen shows moderate ascitis seen right kidney enlargement.

Patient was investigated for the functioning of renal function test and hemoglobin before and after initiating Ayurvedic treatment which indicated an improvement in urea, creatinine and uric acid level. Laboratory test results are compiled in table no.1.

Table No. 1: Renal Function, blood glucose, haemoglobin and electrolytes value during treatment.

Reports date	Renal Function Test			Blood test		Electrolytes		
	Urea (mg/dl)	Creatinine (mg/dl)	Uric acid (mg/dl)	Hemoglobin (gm/dl)	Blood Glucose Test (Fasting) (mg/dl)	Na^+ (mMol/L)	K^+ (mMol/L)	Cl^- (mMol/L)
21 Feb. 2021	294.99	13.03	7.14	13.3	92.70	132.5	4.23	78.7
09 March 2021	80.00	3.12	7.20	16.6	90.00	135	4.43	95
12 April 2021	19.60	1.98	4.60	13.4	102.04	140.6	3.81	97.8
25 May 2021	39.00	2.07	5.56	13.5	95	138	3.84	1.02
20 July 2021	37.00	2.20	6.11	14.8	86	139	4.49	101
24 Aug. 2021	39.00	2.17	5.60	14.0	81	134	3.83	97
28 Sept. 2021	35.85	1.87	4.96	12.8	89.65	137	4.71	99

23 Nov. 2021	58.00	1.77	5.10	14.1	106	138	4.59	101
23 Dec. 2021	48.00	1.76	4.39	13.0	93	138	4.26	101
25 Jan. 2022	56.00	1.59	3.60	13.9	93	138	5.42	93

THERAPEUTIC INTERVENTION:

Ayurvedic Management

According to dosh dominant and dhatu involvement the patient was treated as aam pachan, virechan according to combination of certain Ayurvedic medicine.

Table No. 2: Ayurvedic medicines prescribed to the patient in this case

S.No.	Ayurvedic Intervention	Dosage form	Dose	*Anupana*
1.	*Punarnava churna, Bhumi-amlaki churna, gokhshur churna, makka ke bal and munjh ki jadh* with equal amount (Each having 50 gram)	Decoction prepared in one litre water	50 ml Twice a day	
2.	*Prameha rasayana* -100 mg/day, *Shweta Parpati* -125 mg/day, *Hazrulyahud Bhasma* -500 mg/day, *Godanti bhasma* -500 mg/day *Chandra Prabha vati* – 250 mg/day *Gokhshur churna* – 2 gm/day *Varuntwak churna* – 1 gm/day *Gokhshuradi guggulu* – 500 mg/day	Combination drugs	Twice a day (4 gm)	Normal Water
3.	NEERI KFT	Syrup	Twice a day (4 TSF)	Normal Water
4.	Drain out	Capsule	Twice a day	Normal Water
5.	STOP CKD	Capsule	Twice a day	Normal Water
6.	NEERI	Tablet	Twice a day	Normal Water
7.	Siddark	Arka	Twice a day (100ml)	Normal Water
8.	*Triphala churna*	Powder	Once a day (3gm)	lukewarm water

These medicines were given to the patient for nine months with follow up of 1 month.

Table No. 3 Ayurvedic Medicine composition

S. No.	Medicine	Ingredients
1.	***Prameh Rasayana***	*Basant kusumakar rasa, Swarna mukta, Swarna vanga,shuddha shilajit*
2.	***Shwet parpati***	*Kalmishora, Phitkari, Navasadar* (16:2:1)
3.	***Chandraprabha vati***	*Chandraprabha, Shilajit, Guggul, Loh bhasma, Sharkara, Karpoor, Vacha, Mustak, Haridra, Haritaki, Vibhitaki, Amalaki, Chavya, Vidanga, Guduchi, Shunthi, Maricha, Pippali, Gajpippali, Pipplamool, Sarji kshara, Yav kshara, Saindhav lavan, Suvarchal lavan, Vida lavan, Danti, Dalchini, Tejpatta, Ela, Trivritta, Dhanyak, Chitrak, Ativisha, etc.*
4.	**NEERI KFT**	*Gokshru,Punernava,giloe,Makoya, Palashpushp, Sirisa, Haridra, Shigru, Dhania, Varun, Shwet Parpati, Raktachandan* etc.
5.	**DRAIN OUT**	*Anantmool, gokshur, kulthi, pashanbheda, varun, sheetal mirchi, kakdi beej, daru haridra, mooli kshara, Shubhra parpati, yavakshara, punarnava and saunth.*
6.	**STOP CKD**	*Anantmool, Gokshur, Kulthi, Pashanbheda, Varun, Sheetal Mirchi, Kakdi Beej, Daru Haridra, Mooli kshar, Shubhra Parpati, Yavakshar, Punarnava Mool, Sounth, Hazaral Yahood Bhasma and Sheetal Parpati.*
7.	**NEERI**	*Shuddha shilajit, muli, sheetal chini, sendha namak, punarnava, ikh arka, shaileyam, gokshur, varuna, kulthi dal, lajwanti, kakmachi, trapushpa, daruharidra, palasha.*
8.	***Siddark***	*Ajwain arka, sauf arka, punarnava arka, makoye arka, manjistha arka and kasni arka.*

Diet

The patient was recommended to follow the diet plan which includes wheat, white and brown rice, onion, capsicum, tinda, pumpkin, reddish, squash, corn, pointed gourd, battle gourd, coriander leaves, mushroom, lettuce, turnip, rock salt, lotus stem, tomato, sponge gourd, fenugreek leaves, carrot, beetroot, French beans and ridge gourd and advised to excludes diets including all types of lentils, beans, pulses, milk products, dry fruits, white salt, wheat flour, besan, potato, lady finger, brinjal and taro root.

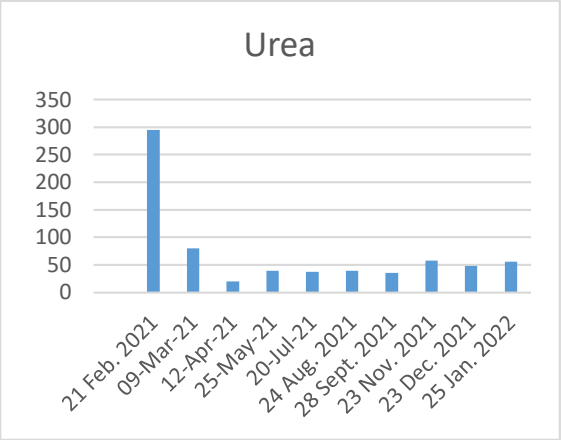
Follow-up and Outcomes

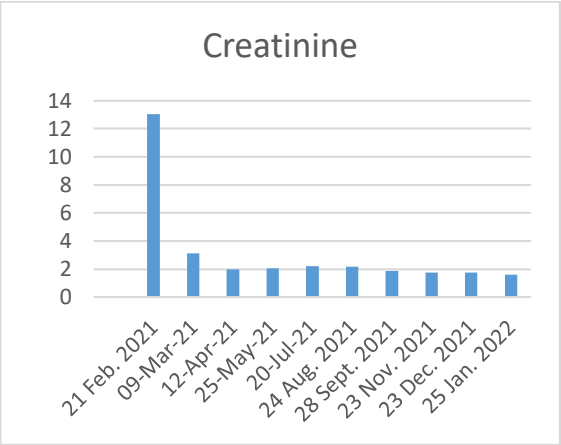
Patient was followed up after every month from the start of Ayurvedic treatment. follow up was taken for time period of nine months. Patient was advised to follow proper diet and medicines.

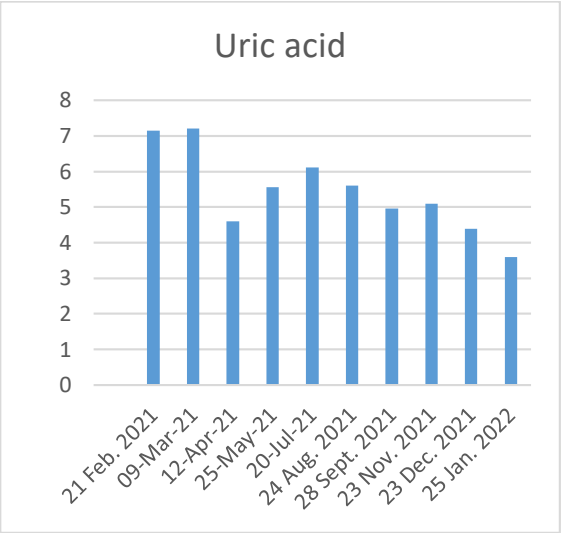
Observations and result

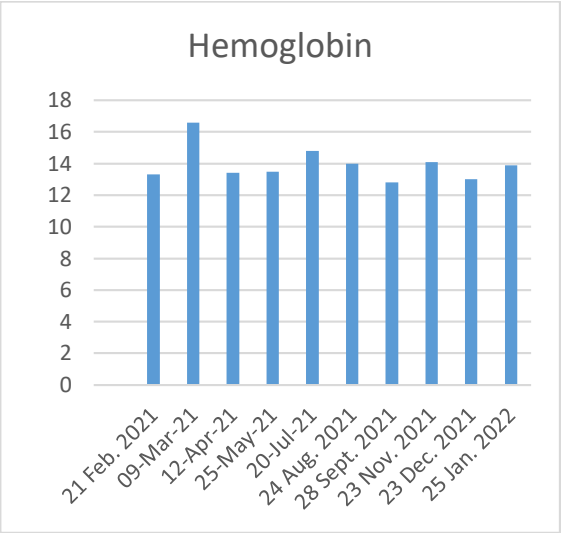
Hypertension and diabetes mellitus are the main causative factors of CKD. The presence of high glucose levels for prolonged period leads to the thickening of the glomerular basement membrane and mesangial expansion which further affects the glomerular filtration rate (GFR). Clinically this condition was diagnosed as *Madhumeha* and *Mutra kshaya* - a type of *Mutraghata*. After 9 months of treatment patient observed significant improvement in generalised weakness, appetite and low back pain. Clinically also significant improvement was observed in pedal edema and urine output. from the laboratory investigation, it was clearly observed that in nine month of treatment period there was decrease in increased level of urea, creatinine and uric acid showing improved condition of kidney. Also, hemoglobin is maintained constant. Blood glucose level was also found to be reduced as compare to the initial condition of the patient.

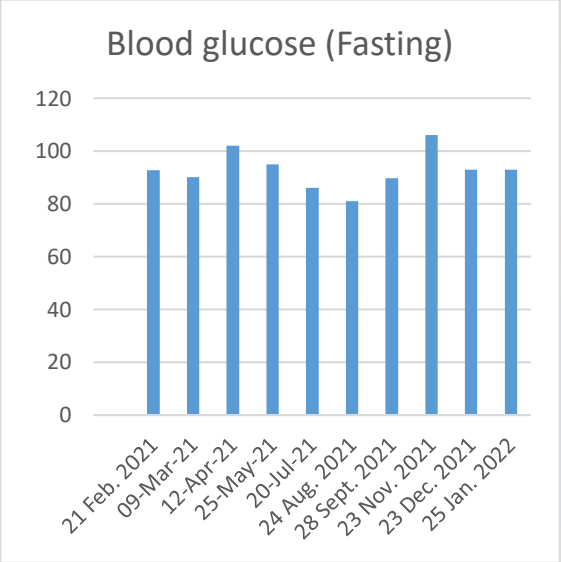
Result are shown in figure 1.

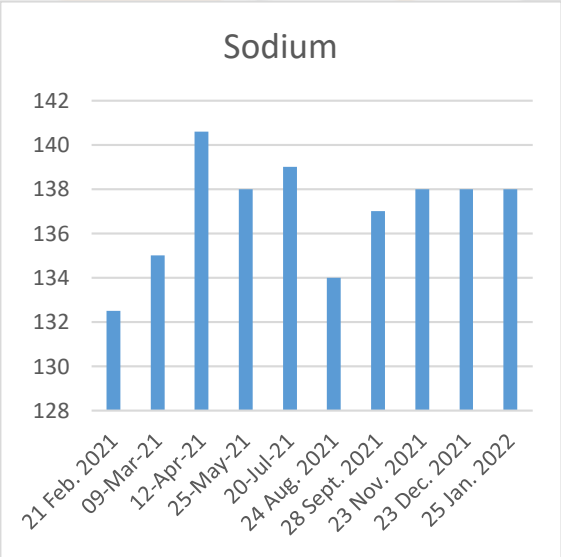

Urea
350
300
250
200
150
100
50
0
21 Feb. 2021
09-Mar-21
12-Apr-21
25-May-21
20-Jul-21
24 Aug. 2021
28 Sept. 2021
23 Nov. 2021
23 Dec. 2021
25 Jan. 2022

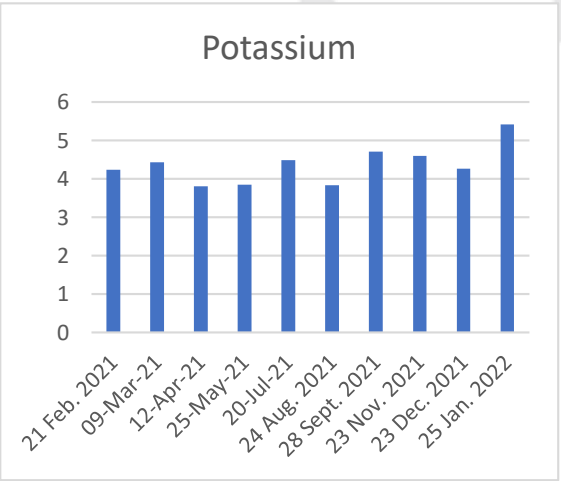

Creatinine
14
12
10
8
6
4
2
0
21 Feb. 2021
09-Mar-21
12-Apr-21
25-May-21
20-Jul-21
24 Aug. 2021
28 Sept. 2021
23 Nov. 2021
23 Dec. 2021
25 Jan. 2022


Uric acid
8
7
6
5
4
3
2
1
0
21 Feb. 2021
09-Mar-21
12-Apr-21
25-May-21
20-Jul-21
24 Aug. 2021
28 Sept. 2021
23 Nov. 2021
23 Dec. 2021
25 Jan. 2022


Hemoglobin
18
16
14
12
10
8
6
4
2
0
21 Feb. 2021
09-Mar-21
12-Apr-21
25-May-21
20-Jul-21
24 Aug. 2021
28 Sept. 2021
23 Nov. 2021
23 Dec. 2021
25 Jan. 2022


Blood glucose (Fasting)
120
100
80
60
40
20
0
21 Feb. 2021
09-Mar-21
12-Apr-21
25-May-21
20-Jul-21
24 Aug. 2021
28 Sept. 2021
23 Nov. 2021
23 Dec. 2021
25 Jan. 2022


Sodium
142
140
138
136
134
132
130
128
21 Feb. 2021
09-Mar-21
12-Apr-21
25-May-21
20-Jul-21
24 Aug. 2021
28 Sept. 2021
23 Nov. 2021
23 Dec. 2021
25 Jan. 2022


Potassium
6
5
4
3
2
1
0
21 Feb. 2021
09-Mar-21
12-Apr-21
25-May-21
20-Jul-21
24 Aug. 2021
28 Sept. 2021
23 Nov. 2021
23 Dec. 2021
25 Jan. 2022

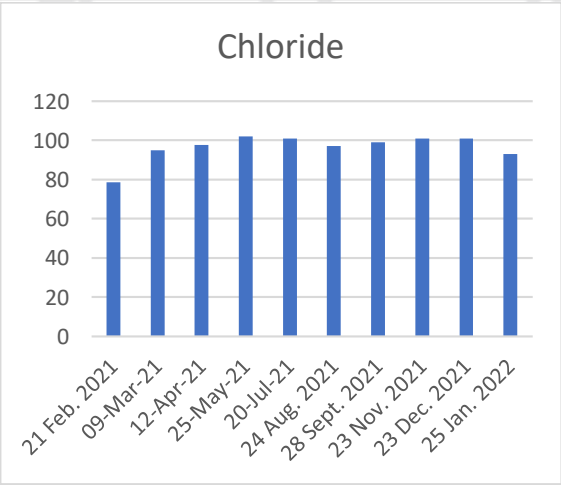

Chloride
120
100
80
60
40
20
0
21 Feb. 2021
09-Mar-21
12-Apr-21
25-May-21
20-Jul-21
24 Aug. 2021
28 Sept. 2021
23 Nov. 2021
23 Dec. 2021
25 Jan. 2022

Figure 1: Graph showing results of renal function test for 9 months period Ayurvedic treatment

DISCUSSION:

Ayurvedic treatment given judiciously can certainly relieve the patient from CKD. According to Ayurveda, chronic renal failure is a disease of *Mutravaha Srotas*. Though all the three *Dosha* as well as all the *Dushya* are involved in the disease, *Kapha* is responsible in blocking the micro vessels and developing micro angiopathy. *Vata* is responsible for degeneration of the structure of the kidney. According to Ayurvedic principles of management of the disease, tissue damage can be prevented and repaired by *Rasayana* drugs because they have the capability to improve qualities of tissues and hence drugs are tikshna, ushna and kaphvata shamaka and lekhana karma. The drugs are *shothaghna* and pachana of aam in srotas in vrikka.

Goksuradi guggulu[6] (Ayurvedic preparation) is *Rasayana* for *Mutravaha Srotas* and it has also *Lekhana* (scraping) effect because of *Guggulu*[7] (Commiphora mukul). It is good diuretic leading to increased sodium excretion.

Specific decoction (*Kwath*) prepared with drugs. This drugs nephroprotective activity. The drug having *Madhur, Tikta, Kashaye Rasa, Ushna Virya, Madhur Vipaka*. Which also property of *Deepana, Pachana, Lekhana and Shodhana*. It is also *Adhobhaga Doshahar* and *Mutra-virechniye*.

Combination of Ayurvedic medicines*Gokshura churna*acts on *Mutravaha Sansthan.* It has properties of *Srotoshodhana* and *Mutravirechana.Varun twak* acts on *mutravaha sansthan*, it has properties of *ashmari bhedan* and *mutrakrichahar.*

Neeri KFT is a perfect polyherbal regime, developed and formulated on the scientific concept, which exerts overall therapeutic activity with safety in various types of urinary disorders like urinary calculi, UTI, cystitis, prostate associated disorders. These extracts are the enriched sources of several phytoconstituents like arbutin, tannins, quinolone derivatives, bioflavanoids, glucosides. It acts as nephroprotective, antioxidants, immunomodulator.A scientific study published in the Indo American journal of pharmaceutical research gauged the efficacy of established kidney protective herbs in Ayurvedic formulation, amongst which Neeri KFT was shown to produce promising results in experimental subjects by significantly reducing the increased levels of kidney function parameters such as serum creatinine, uric acid and electrolytes and also helped to maintain histological parameters of kidneys.

Drain out capsule effective in disintegration of stones and urinary tract infection.

Stop CKD capsule helps to treat and prevent kidney diseases.

Neeri is a perfect polyherbal regime, developed and formulated on the scientific concept, which exerts overall therapeutic activity with safety in various types of urinary disorders like urinary calculi (kidney stone), urinary tract infections and prostate associated disorders.These extracts are the enriched sources of several phyto-constituents like arbutin, quinolone derivatives, bioflavonoids, glucosides, tannins and several micronutrients. It is used in Urinary calculi / Stone, Urinary Tract infections, Cystitis, Burning Micturition and Prostate enlargement.

Siddhark syrup is used in ascites, dysuria, burning micturition, oedema, non-specific UTI's, liver and urinary disorders.

CONCLUSION

This case of chronic kidney disease, based on its presentation and *Dosha* involvement was diagnosed as *Madhumeha* and *Mutrakshaya* and it was treated according to the *Chikitsasutra* of *Mutraghtata*. *Mutrala* and *Tridosha shamaka* mainly *Kapha* and *Vata shamaka dravyas* were used in the management of the disease. With the use Ayurveda medicines this condition was well managed and significant improvement was observed in this case, but such cases require frequent follow ups and regular medication until the serum creatinine levels comes under normal range.

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