



## A CLINICAL STUDY ON THE MANAGEMENT OF RENAL VASCULAR DISEASE WITH CLASSICAL PREPARATIONS OF AYURVEDA

**D. Anuradha\***

Asst. Prof. & HOD, Agadathantra and Vyavahara Ayurveda Dr.BRKR. Government Ayurvedic Medical College, Erragadda, Hyderabad-500038, Andhra Pradesh, India.

Corresponding Author:-**D.Anuradha**  
E-mail: [dranuradha@gmail.com](mailto:dranuradha@gmail.com)

<p><b>Article Info</b></p> <p><i>Received 25/05/2014</i> <i>Revised 19/06/2014</i> <i>Accepted 22/06/2014</i></p> <p><b>Key words:</b> Kidney, Blood pressure, Renal Artery Stenosis.</p>	<p><b>ABSTRACT</b></p> <p>Renin is a hormone plays an important role in regulating blood pressure. Kidneys cannot work, if the renal arteries are blocked or narrowed. The symptom of renal artery stenosis is persistent or severe high blood pressure. A variety of complications that affect the veins and arteries of the kidney is Renal vascular disease. Kidney failure and high blood pressure are lead by the complications of the blood circulation of the kidneys and cause damage to the tissues of the kidneys.</p>
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### INTRODUCTION

The number of patients suffering from chronic renal failure (CRF) or kidney failure is increasing at a very fast rate across the globe. There are various reasons behind this alarming situation. Change in the lifestyle is the root cause of many dangerous diseases. Even diabetes and hypertension are not an exception. Our food has been replaced by new hybridized varieties. Use of pesticides and chemical fertilizers has further worsened the problem [1]. This is because the health of our body tissues depend on the food we take and hence food is a matter of concern for health. All kinds of diseases, symptoms and signs of renal failure are referred to as uremia [2,3].

Chronic renal failure (CRF) is a global health threat in general and for developing countries in particular because therapy is expensive and lifelong. In India, 90% patients cannot afford the cost. It is pathetic to know that there are nearly 7.85 million CRF patients out of one billion populations in India, a country with low income and varied food, cultural and lifestyle habits. The prevalence rate is 0.78% [4,5].

CRF refers to an irreversible deterioration in renal function which classically develops over a period of several years. Initially, it is manifested only as a biochemical abnormality. Eventually, loss of the excretory, metabolic and endocrine functions of the kidney leads to the development of the disease. When death is likely without renal replacement therapy (RRT); it is called end-stage renal failure (ESRF).

Renal artery stenosis is a relatively common finding in older patients with hypertension. However, renal artery stenosis is the primary cause of hypertension (ie, renovascular hypertension) only in certain settings. The social and economic consequences of CRF are considerable and the conventional approach of management includes dialysis and renal transplantation which is not affordable and acceptable by Indian population. Therefore, exploration of a safe and alternative therapy is highly needed, which proves to be helpful in reducing the requirement of dialysis and in postponing the



renal transplantation. Several institutes and scholars are making possible attempts in this direction. The main change in the body is narrowing or complete occlusion of one or both renal arteries. Bilateral renal-artery stenosis may give rise to acute or chronic progressive renal failure. Bilateral renal-artery stenosis is now recognized as an important cause of ischemic nephropathy with chronic renal failure in the elderly [6-8].

Prevalence of Renal artery stenosis will be found in 0.2-5% of all patients with hypertension. Atherosclerosis accounts for 90% of cases of renal artery stenosis in patients >45 years of age. Chronic renal artery stenosis due to fibromuscular dysplasia is more common at age <30 years. Renal artery stenosis occurring in children is most commonly due to initial fibroplasias.

Renal artery stenosis secondary to atherosclerosis is more common in men. Fibromuscular dysplasia is more common in young women. Lipid status, diet, tobacco abuse, as well as type II diabetes mellitus contribute to the development of atherosclerosis [9,10].

As mentioned in Charak sutra, these diseases can't be labeled with some name. The diseases can be studied as a *kupitadasha*, (deformity of system) specific causes and their sites. Considering *vyadhiprakruti* (nature of disease)-*ashaya* (organ effected) i.e. *sthana* (site) is important for *nidana* (diagnosis) and *chikitsa* (treatment).

According to Ayurveda, the kidneys are made up of the "Rakta" (blood) and "Medo" (fatty) *dhatu* (tissue). Treating these two *dhatu* is also an effective way to treat the kidney failure.

The advantage of using Ayurvedic medicines in chronic renal failure is that in most patients, the kidney damage can be either partly or fully reversed, the frequency of dialysis can be reduced, and the increased risk of death from cardiovascular diseases can be significantly reduced. Thus, Ayurvedic medicines have the potential for an important therapeutic contribution in all the stages of this condition. The best way is to prevent them through Ayurveda [11,12].

### Aims and objectives

1. To prove the efficacy of the Ayurvedic preparations in the management of CRF.
2. To scientifically establish that certain Ayurvedic treatments significantly correct albuminuria and serum creatinine value, which are the cardinal features of CRF, and also improve the renal function which is evident by reduction in serum creatinine and blood urea levels.
3. To provide a large human population suffering from CRF, a future possibility of a treatment that can be helpful in reducing the need of HD and to avoid or delay renal transplantation.

### MATERIALS AND METHODS

All patients were selected from the OPD and IPD of the Kayachikitsa department of Government

Ayurvedic Hospital, Erragadda and Pranayama research center (APPRC) Hyderabad.

### Criteria for inclusion

1. Patients with clinically positive history of CRF, having the clinical features of CRF like albuminuria, raised serum creatinine and blood urea, and hypertension were included.
2. Diagnosed patients of CRF as per K/DOQI (Kidney Disease Outcomes Quality Initiative) guidelines of any etiology
3. Clinically stable patients of stage 1 to 5 as per K/DOQI (Kidney Disease Outcomes Quality Initiative) guidelines.

### Criteria for exclusion

1. The patients having diabetic nephropathy were excluded from this study.
2. Patients who were on dialysis therapy.
3. Patients with other added complications.
4. Age: below 10 years and above 80 years

### Investigative parameters

Following pathological and biochemical investigations were carried out in the present study for assessment purpose: urine microscopic, album Hemoglobin %, total count, differential count, platelet count.

Blood sugar- fasting blood sugar/post prandial blood sugar. Serum creatinine, blood urea, serum uric acid serum total proteins serum electrolytes – Calcium (Ca), Potassium (K), Sodium (Na), Chloride (Cl)

Examination of the urine is a special diagnostic tool in Ayurveda. The urine sample should be collected in a clean vessel, taken directly at the time of urination after avoiding the first few drops [13].

### Sesame Oil Drop Urine Examination – Taila Bindu Pariksha

In Ayurveda the examination of a urine sample is important to determine the body constitution and assess doshic influences. A small quantity of urine is taken in a broad-mouthed glass vessel. Then, a drop of sesame oil is taken with a stick and allowed to fall on the surface of the urine. If the drop spreads immediately, the physical disorder is probably easy to cure. If the drop sinks to the middle of the urine sample the illness is more difficult to cure. If the drop sinks to the bottom, the illness may be very difficult to cure. If the drop spreads on the surface in wave like movements, this indicates a Vata disorder. If the drop spreads on the surface with multiple colors visible like a rainbow, this indicates a Pitta disorder. If the drop breaks up into pearl like droplets on the surface of the urine, this indicates a Kapha disorder [14,15].

### Plan of study

1. Presence of chronic *Kidney* disease was established based on the presence of *Kidney* damage and level of *Kidney* function through glomerular filtration rate (GFR),



irrespective of the cause of renal failure, according to the K/DOQI guidelines. The patients were treated in OPD as well as in IPD. A total of 100 patients with CRF were registered for the study. The patients were treated with the following three herbal medicines

A. Punarnavadi guggulu tablet prepared as per Yogaratnakara [16,17].

B. Shilajit (Dabur) tablet 500mg, twice daily.

C. Dashmoolaquatha

2. The patients were kept on normal healthy diet.

3. The doses of the continuous antihypertensive drugs of the patients were not interfered with.

#### Preparation of medicines & Duration of the treatment

Punarnavadi guggulu & Dashmoola quatha were products manufactured by Baidyanath and Shilajit from Dabur for present clinical study. The total duration of treatment was 40 days [18-20].

#### Assessment of the results

1. All the patients were clinically assessed before and after treatment.
2. Changes in symptoms, albuminuria, serum creatinine, blood urea and hemoglobin were observed.
3. Observations were evaluated statistically.

## RESULTS AND OBSERVATIONS

The main causative factor for CRF in this study was hypertension; 86% patients were found in this group. 7% patients were having chronic nephritis and 5% were having polycystic kidney disease. Only 2% of the patients were found with obstructive nephropathy. (Table 1). Serum creatinine reduced by 20.71% and it was statistically highly significant. Blood urea reduced by 32.15% and it was also statistically highly significant. Albuminuria reduced by 36.70% and this was statistically highly significant. Hemoglobin increased by 4.65% and this was statistically highly significant. (Table 2). None of the patients had shown any new and unusual feature. Urine output increased by 56.54% and it was statistically highly significant. Out of 100 patients, edema was reported by 58 patients and it reduced by 71.56%. Nausea was reported in 46 patients and it was relieved by 68.75%. The 24 patients were found to have vomiting and it was relieved by 82.35%. Weakness was found in 85 patients and it reduced by 55.61%. The 53 patients were having loss of appetite, and appetite increased by 59.29%. Leg cramps were found in 17 patients and it reduced by 72%. Breathlessness was found in 27 patients and it was relieved by 64.29%. Hiccup was found in only one patient and was totally relieved. The 19 patients reported pruritus and it reduced by 66.66% (table 3). Reductions in all these symptoms were statistically highly significant.

**Table 1. Basic underlying cause of chronic renal failure**

Basic cause	No. of patients	Percentage
Hypertension	86	86
Chronic nephritis	07	07
Polycystic kidney disease	05	05
Obstructive nephropathy	02	02

**Table 2. Effect of Ayurvedic treatment on laboratory investigations of 100 chronic renal failure patients**

Investigation	Mean score		%	SD	SE	t value	P value
	BT	AT					
Serum creatinine(mg/dll)	6.054	4.8	20.71	1.73	0.138	9.114	<0.001
Blood urea(mg/dll)	111.3	75.5	32.15	39.38	3.938	9.085	<0.001
Albuminuria(g/l)	1.88	0.69	36.70	0.74	0.075	9.225	<0.001
Hemoglobin(g%)	10.06	10.5	04.65	1.06	0.106	4.380	<0.001

**Table 3. Effect of Ayurvedic treatment on symptoms and signs of 100 chronic renal failure patients**

Symptoms	Mean score		%	SD	SE	t value	P value
	BT	AT					
Urine output day(in ml)	817.5	1881	130.12	5000.81	79.18	13.43	<0.001
Nausea	1.73	0.54	68.75	0.5	0.074	16.23	<0.001
Vomiting	1.41	0.25	82.35	0.48	0.098	11.86	<0.001
Loss of appetite	2.13	0.86	59.29	0.59	0.018	15.51	<0.001
Edema	1.87	0.53	71.56	0.51	0.067	19.89	<0.001
Weakness	2.30	1.02	55.61	0.64	0.070	18.25	<0.001
Dyspnea	1.55	0.55	64.29	0.39	0.075	13.25	<0.001
Insomania	1.37	0.22	83.78	0.36	0.069	16.47	<0.001
Leg cramps	1.47	0.41	72.00	0.24	0.058	18.00	<0.001
Abdominal pain	1.63	0.47	70.96	0.37	0.085	13.47	<0.001
Pruritus	1.57	0.52	66.66	0.40	0.092	11.33	<0.001



## DISCUSSION AND INTERPRETATION OF RESULTS

As mentioned above, CRF is specific form of renal disease. There is no pain without Vata, there is no inflammation without Pitta, and there is no stagnation without Kapha. Mutra Agni controls the kidneys and the excretion of urine. It is seated in the bladder and the urinary tract. Liquids are filtered by the kidneys. They extract the soluble wastes from the bloodstream, as well as excess water, sugars, and a variety of other compounds. This waste material (Kitta) is excreted from the body through the bladder and urethra. Mutraagni maintains the function of the kidneys, the acid / alkaline balance of the urine and the quantity of urine. Anti Diuretic Hormone from posterior pituitary balance can be considered as Mutragni [21].

According to *Ayurveda*, CRF is a disease of *Mutravaha Srotas*. Though all the three *Doshas* as well as all the *Dushyas* are involved in the disease, *Kapha* is responsible in blocking microvessels and developing microangiopathy. *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 increase resistance of the tissues. On the other hand, blockage can be removed by *Lekhana* drugs having scraping effect on blocked channels Punarnavadi *guggulu* (combined Ayurvedic preparation) and shilajit are *Rasayana* for *Mutravaha Srotas* and *Lekhana* (scraping) effect because of *Guggulu* (*Commiphora mukul*). *Dashmoola kvath* is also helpful to relieve the *Kapha* and *Vatadoshas*. *Niruhabasti with dahamoola quatha* is a minor alternative (panchakarma therapy in

ayurveda) of dialysis. A total of 100 patients of CRF were taken for the research study. In this study, it was found that serum creatinine reduced by 20.71% with treatment. This beneficial effect was statistically highly significant which is encouraging and shows improvement in kidney functions. Blood urea reduced by 36.15% with treatment and it was also statistically highly significant. Treatment resulted in reduction in albuminuria by 36.70% and increase in hemoglobin by 4.65%, which were statistically highly significant. Reduction in edema, weakness, leg cramps, increase in appetite, and relief from nausea, breathlessness and pruritus were statistically highly significant [22].

## CONCLUSION

With the help of clinical observations and the discussion made, it may be concluded that 86% patients of CRF have hypertension as a basic underlying cause. The result obtained may be attributed to the disease modifying effect of trial therapy by means of its *Rasayana* (immunomodulator) and anti *Vata-Kapha* properties.

The trial therapy is an ideal drug as a safe and effective alternative in case of CRF. Serum creatinine, blood urea and albuminuria reduced 20.71%, 32.15% and 36.70%, respectively. Hemoglobin level and urine output increased by 4.38% and 56.54%, respectively. They were statistically highly significant. All the patients have shown more than 50% relief in all the signs and symptoms. In a difficult condition where conventional treatments are beyond the financial capacities of a common man of the country, this therapy can be hopeful and promising. Further long duration studies and with a bigger sample size are needed to observe exact drug action.

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