

**Chronic renal failure and it is *nephroprotective* treatment in *Ayurveda*: A review****B. N. Gadve¹, Sejal A. Patil *²****1. Associate Professor and Guide,
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C.S.M.S.S. Ayurveda Mahavidyalaya, Kanchanwadi, Aurangabad.***Corresponding Author:** Email: sejalpatil67@gmail.com**ABSTRACT:**

Chronic renal failure (CRF) is a threat to global health in general and for developing countries in particular. Globally CRF is the 12th highest cause of death. CRF is a progressive loss in renal function taking place over a period of months or years. This initially manifests only as a biochemical abnormality. CRF is considered when glomerular filtration rate (GFR) falls below 30ml/min. The conventional approach of management includes dialysis and renal transplantation, which are not affordable. Therefore, exploration of a safe and alternative therapy is needed. In Ayurveda, the disease can be consider as complication arising from various urinary disorders. A hampering of the function of *basti*, i.e. urine formation, results in the accumulation of several noxious products in circulation which need excreted management is aimed at eliminating these toxins, to protect the accessible renal cells rejuvenate the quiet cells. In Ayurveda several drugs are used as nephroprotective and this group of drug acts as good non-specific *cytoprotectives*. In this regard *Ayurveda* provides leads through its holistic line of management by in co-operative dietary and lifestyle invention

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and bio-balancing effects of Ayurvedic drugs.

Keywords: *Ayurvedic Nephroprotective* drugs, Chronic renal failure, *Mutraroga***INTRODUCTION:**

Chronic renal failure (CRF) is a global threat to health in general and for developing countries in particular because therapy is expensive and lifelong. CRF refers to an irreversible deterioration period in renal function which classically develops over a period of years. Chronic renal failure is the progressive loss of kidney function. The kidneys attempt to compensate for renal damage by *hyperfiltration* in turn that causes further loss of functions and symptoms may appear at the stage of irreversible damage, which include vomiting, loss of appetite, fatigue and weakness, sleep problems, changes in urine decreased mental sharpness, muscle twitches and cramps, hiccups, swelling of feet and persistent itching, shortness breath, high blood pressure etc⁽¹⁾. Initially, it is manifested only as a biochemical abnormality. Eventually, loss of the excretory, metabolic and endocrine function of the kidney leads to the development of the

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clinical symptoms and signs of renal failure. When death is likely without renal replacement therapy (RRT), it is called end stage renal failure (ESRF)⁽³⁾. It would be interesting to know that the incidence of chronic kidney disease in India, which is a densely populated country with low income, different food, cultural traditions and lifestyle habits is 7.85 million CRF patients of its 1 billion population and the prevalence rate is 0.78%⁽²⁾

Ayurveda treatment for CRF prevention is always the goal with kidney failure. Chronic disease such as hypertension and diabetes are devastating because such as hypertension and diabetes are devastating because of the damage that they can do to kidney and other organs. Lifelong diligence is important in keeping blood sugar and blood pressure within normal limits. Specific treatments are dependent upon the underlying diseases. Once kidney failure is failure present, the goal is to prevent further deterioration of renal function⁽⁴⁾. If ignored the kidneys will progress to complete failure, but if underlying illnesses are addressed and treated aggressively, kidney function can be preserved, though not always improved. The *Ayurveda* herbs can be taken along with other types of medicines and treatments/procedures including dialysis. In *Ayurveda* several drugs are used as *nephroprotective* and this group of drug acts as good non-specific cytoprotectives.⁽⁵⁾ In this background, it was thought worthwhile to evaluate the drugs which could be useful as adjuvant as *nephroprotectives* which could be administered to decrease the potential nephrotoxicity of drugs like cyclosporine etc.⁽¹⁾

Etiology – A variety of disorders are associated with CKD. Either a primary renal process (glomerulonephritis, pyelonephritis, congenital hypoplasia) or a secondary one (owing to a systemic

process such as diabetes mellitus or lupus erythematosus) may be responsible. Once there is kidney injury, it is now felt that hyperfiltration to undamaged nephron units produces further stress and injury to remnant kidney tissue. The patient will show progression from one stage of CKD severity to the next. Superimposed physiologic alterations secondary to dehydration, infection obstructive uropathy, or hypertension may put a borderline patient into uncompensated chronic uraemia.⁽¹³⁾

Causes of Chronic renal failure-

The cause for can be determined by a detailed medical history, a comprehensive physical examination and laboratory studies but it is difficult if not impossible. There are some identified disease conditions that may lead to CRF that can be categorized in 3 groups^(7,8,9) –

- 1) Pre renal causes – Some medical conditions cause continuous hypoperfusion (low blood flow) of the kidney, leading to kidney atrophy, loss of nephron function and chronic renal failure.
- 2) Post renal causes – The disease conditions that interference with the normal flow of urine can produce backpressure within the kidneys and can damage nephrons.
- 3) Renal causes diabetic nephropathy, hypertension, nephrosclerosis, chronic glomerular nephritis, renal vasculitis, cystic kidney disease, hereditary diseases of the kidney.

Sign and symptoms of CRF –

CRF usually produces symptoms when renal function – which is measured as the glomerular filtration rate (GFR) falls below 30 millilitres per minute (<30ml/min.)⁽¹⁰⁾. This is approximately 30% the normal value. When the

glomerular filtration rate slows to below 30ml/min., signs of Uraemia (high blood level of protein by products, such a urea and creatinine) may become noticeable when GFR falls below 15ml/min. most people become increasingly symptomatic. With milder CKD, there may be no clinical symptoms such as pruritus, generalized malaise, lassitude, forgetfulness, loss of libido, nausea and easy fatigability are frequent and non-focal complaints in moderate to severe CKD. Uremic symptoms can affect every organ system in the body and mainly are - Neurological system: cognitive impairment personality change.

Gastrointestinal system – nausea, vomiting

Blood- forming system – anaemia due to erythropoietin deficiency.

Pulmonary system – fluid in the lungs, with breathing difficulties.

Cardiovascular system – chest pain due to inflammation of the sac surrounding the heart.

The abnormalities may signal CRF –

- 1) Anaemia
- 2) High level of parathyroid hormones

The content is summarized in Table no. 1 (shown end of article):

Discussion & interpretation:

CRF is specific form of renal disease. According to Ayurveda, CRF is a disease of *mootravaha strotas*. Though all the 3 *doshas* as well as all the *dushyas* are involved in the disease, *kapha* is responsible in blocking microvessles 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. Because they have the capability to improve qualities of

- 3) Hypocalcemia
- 4) Hyperphosphatemia
- 5) Hyperkalemia
- 6) Hyponatremia
- 7) Low plasma PH
- 8) Low blood level of Bicarbonate
- 9) Low serum proteins
- 10) Presence of proteins in urine.

Material and method:

The Nephroprotective drugs used in kidney disorders like chronic renal failure were compiled from various lexicons and *samhitas* like *charaksamihta*⁽²⁾, *Sushrutasamhita*, *Bhavprakashnighantu*, *Dhanvantarinighantu*. The drugs were analysed based on *Rasadi Guna, Karma*, physical & chemical properties, *Doshghnta*, pharmacological properties.

Observation:

The Nephroprotective drugs (*mootravirechaniya gana, mootravirajaniya gana, utpaladi gana, varunadi gana*) used in chronic renal failures are analysed based on *rasadi guna, karma*, and its pharmacological activity.

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.

CONCLUSION:

The present review reveals that apart from classical texts, new recent researchers to provide a multiple treatise for *mutravaha strotas vikriti* (renal disorders), so that extras pharmacopoeial as well as known herbs, easily available drugs may come into main stream of treatment on renal disorders. Secondly the herbs which are

used by tribes in their day practice can be validated scientifically in future study.

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Table_01
List of the Nephro protectives drugs mentioned in lexicons & classical texts used in CRF⁽¹¹⁾⁽¹²⁾⁽¹⁴⁾

| N o. | Name | Latin name | Ras | Virya | Vipak | Karma & Doshghnta | Prayojyang | Physical & Chemical properties | Pharmacological properties |
|------|--------------------|-------------------------------|------------------------------|---------------|---------------|--|------------------------|---|---|
| 1 | <i>Padmak</i> | <i>Prunus cerasoides</i> | <i>Tikta, Kashay</i> | <i>sheeta</i> | <i>Katu</i> | <i>Kaphapittahara , mutral, edanasthapak</i> | Seeds | Padmakastin, flavonone, Isofalvone prunetin | Antiseptic, Antimicrobial, antibacterial |
| 2 | <i>Nalin</i> | <i>Nelumbo nucifera</i> | <i>Kashay, tikta, madhur</i> | <i>sheeta</i> | <i>madhur</i> | <i>Kaphapittashamak, mootravirajaniya</i> | Leaves, flowers, seeds | Alkaloids, nuciferine, quercetin | Flowers-diuretics, astringent, Haemostatic |
| 3 | <i>Madhuk</i> | <i>Glycyrrhiza glabra</i> | <i>Madhur</i> | <i>sheet</i> | <i>madhur</i> | <i>mutral</i> | root | Glycyrrhizin acid, sulphuric acid, metallic acid | Anti-inflammatory, anti-oxidant |
| 4 | <i>priyangu</i> | <i>Callicarpa macrophylla</i> | <i>Tikta, kashay, madhur</i> | <i>sheet</i> | <i>Katu</i> | <i>mootravirajniya</i> | Flower, fruits | Calliterepenone, beta-sitosterol, monoacetate | Astringent, styptic |
| 5 | <i>Dhataki</i> | <i>Woodfordia fruticosa</i> | <i>kashay</i> | <i>shheta</i> | <i>Katu</i> | <i>Kaphapittashamak, mootravirajniya</i> | flower | Tannin, lawsin | Astringent, pungent |
| 6 | <i>pashanbheda</i> | <i>Bergenia lingulata</i> | <i>Tikta, kashay</i> | <i>sheeta</i> | <i>Katu</i> | <i>Tridoshshamak,</i> | roots | Afzelechin flavonoid, epiafzelechin, berginine | Antiuro lithic, diuretic |
| 7 | <i>gokshur</i> | <i>Tribulus terretris</i> | <i>Madhur</i> | <i>shheta</i> | <i>madhur</i> | <i>Vatapittashamak, mutral, shothhara</i> | Root&fruit | Tribulusamides A&B, saponins, terrestrosins A,B,C,D | Anti-inflammatory, diuretic, lithotriptic |
| 8 | <i>kush</i> | <i>Desmostachya bipinnata</i> | <i>Madhur, kashay</i> | <i>shheta</i> | <i>madhur</i> | <i>Tridoshhar , mutral</i> | root | Amino acids, kaempferol, quercetin-3-Oglucoside | Antimicrobial, haemostatic, diuretic, lithotriptic property |
| 9 | <i>kash</i> | <i>Saccharum spontaneum</i> | <i>Madhur, kashay</i> | <i>sheeta</i> | <i>Madhur</i> | <i>Vatapittahara, mutral</i> | root | Starch, polyphenolic compounds | Diuretic, lithotriptic |
| 10 | <i>darbha</i> | <i>Imperata cylindrica</i> | <i>Madur, kashay</i> | <i>sheeta</i> | <i>madhur</i> | <i>Tridoshhar, mootravirechaniya</i> | root | Triterpenoides, cylindrin, isoburenol, | Antihistaminic, diuretic, natriuretic, |

| | | | | | | | | | |
|--------|-------------------|--|------------------------------|---------------|---------------|--|------------------------------|---|---|
| | | | | | | | | arundoin | astringent |
| 1 1 | <i>shar</i> | <i>Saccharum munja</i> | <i>Tikta, madhur</i> | <i>sheeta</i> | <i>Madhur</i> | <i>Tridoshar, mutral</i> | root | Flavonoids, alkaloids, glycosides, tannins, | Antimicrobial, antioxidant, antibacterial |
| 1 2 | <i>Ikshu</i> | <i>Saccharum officinarum</i> | <i>Madhur</i> | <i>sheeta</i> | <i>madhur</i> | <i>Vatapittashamak, mutral</i> | root | Aibumin, guanin, anthocyanin, flavonoids | Antioxidants, |
| 1 3 | <i>vrikshad</i> | <i>Dendrophthoe falcatus (loranthus)</i> | <i>Tikta, madhur, kashay</i> | <i>sheeta</i> | <i>Katu</i> | <i>Tridoshshamk, mootravirechaniya</i> | Leaves, flower | Flavonoid, beta-sitosterol, quercetin, rutin-II, tannin | Antimicrobial, diuretic |
| 1 4 | <i>poonarnava</i> | <i>Boerhavia diffusa</i> | <i>Madhur, tikta, kashay</i> | <i>ushna</i> | <i>Katu</i> | <i>Kaphavatahara, shothahar</i> | root | Beta-sitosterol, oxalic acid, boeravinones A, B, C, punarnavine | Anti-inflammatory, anti-oxidant, haematinic |
| 1 5 | <i>Apamarga</i> | <i>Achyranthes aspera linn.</i> | <i>Katu, tikta</i> | <i>ushna</i> | <i>Katu</i> | <i>kaphavatahamak</i> | roots | Potassium salts | Anti-inflammatory, antiseptic, diuretic |
| 1 6 | <i>shigru</i> | <i>Moringa oleifera</i> | <i>Katu, tikta</i> | <i>ushna</i> | <i>Katu</i> | <i>Kaphavatahara, dipan</i>  | seeds, leaves | Amino acids, moringine, glutamic acid, sterols, terpenes | Anti-microbial, anti-inflammatory |
| 1 7 | <i>varun</i> | <i>Crateva nurvala</i> | <i>Tikta, kashay</i> | <i>ushna</i> | <i>Katu</i> | <i>Kaphvatahara,</i> | Root bark, stem bark, flower | Lupeol-flavonoids, saponin, tannin, quercetin, beta-sitosterol | Diuretic, anti-inflammatory, anti-microbial |