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THE ROLE OF *TRINA PANCHMOOL KWATH NIROOH BASTI* IN CHRONIC KIDNEY DISEASE: AN ANALYTICAL REVIEW

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ABSTRACT
Chronic Kidney Disease (CKD) or Chronic Renal Failure is the slow loss of renal functions over time greater than 3 months. Type 2 Diabetes Mellitus and Hypertension are the most common causative factors. It has 5 stages with stage 3 being the most common. It is usually asymptomatic in the early stages. About one in ten people have some degree of Chronic Renal Failure. It affects people of all ages and races. More common in women than men and increases with increasing age. Complications include electrolyte abnormalities, toxin build up, hyperkalaemia, weak bones etc. The direct description of the disease is not available in Ayurvedic science, so the disease can be treated by Ayurvedic concepts only on the basis of signs and symptoms. As Modern medicine has limited disease modifying treatment, Ayurveda plays an important role in improving the condition of the patient. Trina Panchmool Kwath basti is one such treatment. As basti works through the nerve innervation theory and the intestines are highly innervated, Trina Panchmool Kwath Nirooh Basti helps in sending signals to the brain. It innervates the nerve endings of the rectum and colon and activates the Autonomic nervous system and thus performs the act of excretion of vitiated doshas and malas, enhancing the patient's condition.

KEYWORDS: Chronic Kidney Disease, Trina Panchmool Kwath, basti, doshas, malas.

INTRODUCTION
Chronic Kidney Disease is defined as the presence of kidney damage, manifested by abnormal albumin excretion or decreased kidney function, quantified by measured or estimated glomerular filtration rate (GFR), that persists for more than three months[1,2] The signs and symptoms may appear at the stage of irreversible damage, which include nausea, vomiting, loss of appetite, fatigue & weakness, sleep problems, changes in urine output, decreased mental sharpness, muscle twitches & cramps, hiccups, swelling of feet & ankles, persistent itching, shortness of breath, high blood pressure (hypertension) etc.[3] CKD leads to chronic loss of kidney function which causes generalized wasting (shrinking in size) and progressive scarring within all parts of the kidneys. The kidneys become small and shrunken.[4] To facilitate assessment of CKD severity, the National Kidney Foundation developed criteria, as part of its Kidney Disease Outcomes Quality Initiative (NKF KDOQI™), stratify CKD patients.[5]

- Stage 1: normal eGFR ≥ 90 mL/min per 1.73 m^2 and persistent albuminuria
- Stage 2: eGFR between 60 to 89 mL/min per 1.73 m^2
- Stage 3: eGFR between 30 to 59 mL/min per 1.73 m^2
- Stage 4: eGFR between 15 to 29 mL/min per 1.73 m^2
- Stage 5: eGFR of < 15 mL/min per 1.73 m^2 or end-stage renal disease.

Patients with stage 3 or 4 disease progress to end stage renal disease or stage 5 at a rate of 1.5% per year. Stage 1 or 2 CKD patients progress to more advanced stages at approximately 0.5% per year.[6] It is an internationally recognized public health problem affecting 5-10% of world population.[7] It is estimated under Global burden of diseases that diseases of the kidney and urinary tract contribute to 8, 30, 000 deaths annually and 1, 88, 67 000 disability-adjusted life years (DALY), and that is the 12th highest cause of death (1.4% of all deaths) and the 17th cause of disability (1% of all DALY).[8,9] Chronic renal failure is reported to be a silent Epidemic.[10] Incidence of Chronic Renal Failure has been doubled in the last 15 years. It is a global threat to health in general and for developing countries in particular, because therapy is very expensive and life-long.[11] Over 2.6 million people worldwide were surviving on dialysis as per data available in 2010.[12] The modern management of CKD is not satisfactory and the ultimate goal is renal transplant. Ayurveda proclaims that naming of diseases is not necessary but the mainstay is to assess the *dosha, Dushya, adhishthana* along with strength of disease and

patient, then incorporate the appropriate therapeutic interventions. The disease CKD is not fairly known in Ayurveda, but on the basis of pathogenetic events we can assess and plan the management.[13] According to Ayurveda, the kidneys are made up of the "*Rakta"* and "*Meda" dhatus.*[14] Treating these two *dhatus* is also an effective way to treat the kidneys. We can also correlate Chronic Kidney Disease to *Mootravaha Strotasgata Vyadhi*. Administering *Trina Panchmool Kwath Nirooh Basti* is one such treatment which works efficiently on Mootravaha Strotas.

DISCUSSION

Trina Panchmool Kwath is an Ayurvedic medicine in water decoction form. It is used in the treatment of urinary tract disorders of *Pitta* origin. It is made of roots of five types of grasses.[15]

Kusha – Desmostachya bipinnata.
Kasha – Saccharum spontaneum.
Shara – Saccharum munja.
Darbha –Imperata cylindrical.
Ikshu – Sugarcanne – Saccharum officinarum.

All the ingredients are added to 16 parts of water, boiled and reduced to 1/4th part, filtered and used.

Kusha

The hydro-alcoholic extract of – *Desmostachya bipinnata* showed significant diuretic activity and was found to be the most potent in increasing the urinary output at 500 mg/kg when the effect was compared with that of the standard frusemide ($P<0.01$). Moreover, this extract was found to be most effective in increasing urinary electrolyte concentration (Na^+, K^+, and Cl^-) at both doses tested.[16]

Kasha

A Study highlights that *Saccharum spontaneum* is the most effective drug in inhibiting stone formation and healing renal damage caused by oxalate toxicity, thus confirming its antiurolithiatic property.[17]

Darbha

A study shows the diuretic effect of four traditional Vietnamese herbal remedies from *Zea mays, Imperata cylindrica, Plantago major* and *Orthosiphon stamineus*, all claimed to produce an increase of urine. Hence *Darbha* has diuretic action.[18]

Shara

It's plant synthesizes phytochemicals which have anti-inflammatory, anti-oxidative and anti-microbial microbial properties thus making them important therapeutic sources.[19]

Ikshu

The diuretic activity of *Saccharum officinarum* extract might be due to the flavanoids bound to Adenoside A1 receptor. The presence of Saponins acts by modulating renal sodium excretion and produces saluretic activity. Treatment with the ethanolic leaf extract of *Saccharum officinarum* decreased level of uric acid, calcium and creatinine Serum.[20]

The antioxidant activity of individual as well as the combination of all five components of *Trina Panchmool Kwath* was tested by adopting DPPH method and Ferric reducing antioxidant power assay method. In these tests, the combinations of all five drugs showed better antioxidant activity in terms of % inhibition and IC 50 in comparison to individual drugs. The results of this research suggested that combination of all five drugs (*Trina Panchmool*) may be used as potential remedy to treat several ailments which are associated with free radicals.[21]

The above experiments clearly show the diuretic and antioxidant properties of individual components of *Trina Panchmool Kwath*. Moreover when administered in the form of *Nirooh Basti* it works more efficiently as *basti* works through the nerve innervation theory and the intestines are highly innervated, so it directly send signals to the brain .It innervates specific receptors, the nerve endings of the rectum and colon and activates the Autonomic nervous system .Thus performs the act of excretion of vitiated *doshas* and *malas*, enhancing the patient's condition.

CONCLUSION

The above studies clearly show the diuretic and antioxidant properties of various components of *Trina Panchmool Kwath*, hence when administered in the form of *Nirooh Basti* helps in restoring the damaged kidneys and acts accordingly on various stages of Chronic Kidney Disease.

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