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Case Report

Discovering the efficacy of integrated therapies on renal disorders

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Abstract

Aim: The study aims to investigate the efficacy of integrated therapies, including yoga, naturopathy, and Ayurveda, in managing Chronic Kidney Disease (CKD) and improving patient's quality of life while addressing disease progression.
Study Design: This research was designed as a single-center case series, conducted at the Patanjali Wellness Centre, Haridwar, Uttarakhand.
Duration of the Study: The study took place from September 2023 to August 2024.
Method: The study involved seven CKD patients (3 Female & 4 Male) aged between 29 and 63 years, who were treated as inpatients. The interventions included yoga asanas, pranayama, naturopathic therapies, dietary management, and Ayurvedic medications. Pre- and post-treatment evaluations were performed using physiological, biochemical and radiological assessments, including kidney function tests and ultrasonography.
Results: Integrated therapies led to significant improvements in renal function markers and symptom relief. Serum creatinine levels decreased by 15–25% in five out of seven patients, while blood urea levels dropped by 20–30%. There was a noticeable improvement in electrolyte balance and a reduction in proteinuria. Ultrasound results showed reduced kidney inflammation and no progression of renal parenchymal damage. Patients also reported better sleep, reduced fatigue, and alleviation of symptoms like swelling and body pain.
Conclusion: The findings from this holistic treatment approach highlight its potential in managing chronic conditions such as CKD and other diseases. The results suggest that integrative therapies may offer an alternative for patients seeking to reduce long-term dependence on conventional pharmacological treatments. However, further large-scale, well-controlled studies are necessary to substantiate these outcomes and establish their clinical efficacy.

Keywords: Ayurveda; Chronic kidney disease; Integrated-pathy; Naturopathy; Renal disorders; Yoga.

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1. Introduction

Chronic kidney disease (CKD) is defined by kidney damage or an eGFR below 60 mL/min/1.73 m² for over three months, resulting in nephron loss, glomerular hyperfiltration, and systemic complications.[1] It involves structural or functional abnormalities causing adverse health outcomes.[2] CKD is a significant global cause of death, impacting 13.4% of the world's population, with 80% of affected individuals residing in low- and middle-income countries.[3] Studies indicate CKD patients have a 40–50% higher risk of coronary artery disease.[4] As renal function declines, various CKD-related complications arise,

including metabolic disturbances, electrolyte imbalances, endothelial dysfunction, anemia, cardiovascular disease and proteinuria, these complications often present with symptoms like pruritus, pain, insomnia, and muscle cramps, which negatively impact patients' quality of life.[5,6] Pathophysiology of CKD is marked by irreversible nephron loss, leading to impaired renal function.[4] Pathophysiology typically begins with an initial trigger, such as diabetes, hypertension, or glomerulonephritis, which causes nephron damage.[7] In response, the remaining nephrons undergo compensatory hyperfiltration. This process, mediated by the renin-angiotensin-aldosterone system (RAAS), raises the intraglomerular pressure, further exacerbating nephron injury. Continued damage results in tubulointerstitial inflammation, oxidative stress, and fibrosis, driven by pro-inflammatory cytokines such as TGF-β and TNF-α[8]. In the United States, the prevalence of CKD rise from 12% in 1994 to 14% in 2004, while studies conducted between 2000 and 2012 reported a prevalence of approximately 13% in both China and India [9]. CKD is a progressive, irreversible

condition that ranges from Stage 1 (mild) to Stage 5, or end-stage renal disease (ESRD). This involves maintaining optimal blood pressure and glycemic control, as well as limiting protein and salt intake to preserve kidney function.[10] In ESRD the conventional approach of management includes dialysis and renal transplantation, becomes necessary to sustain life and improve quality of life for CKD patients, which are not affordable by Indian population mainly due to economic reasons.[11] The ongoing challenges in treating CKD combined with limited treatment efficacy. Therefore, exploration of a safe and alternative therapy is needed, which proves to be helpful in reducing the requirement of dialysis and in postponing the renal transplantation, this have led to the widespread use of Complementary and alternative medicine (CAM), presents potential therapeutic options to enhance quality of life (QOL) as well as fastest recovery for patients with CKD.[12] Alternative therapies like Ayurvedic medicine, Naturopathy, Yoga, Pranayama, and herbal supplements have shown benefits, such as better disease management, quicker recovery, and easier treatment methods, without the common side effects of conventional treatments.[5] These holistic approaches not only target the root of health issues but also improve overall well-being, making them a preferred choice for many patients. This single-centre case series aimed to investigate the clinical profiles, management strategies, treatment methods, and outcomes of chronic kidney disease (CKD) patients who integrated alternative therapies into their treatment plans.

2. Patient Information

Seven patients diagnosed with chronic kidney disease (CKD) came at Patanjali Wellness Centre, Patanjali Yogpeeth II, Haridwar for treatment over a period between September 2023 to August 2024. The participants, aged between 29 and 63 years, comprised four males and three females (**Table 1**). All patients received treatment in the Inpatient Department (IPD) basis. Each patient was thoroughly informed about the nature and purpose of the study, and written informed consent was obtained from all participants to ensure ethical compliance.

2.1 Psycho-social history

The psycho-social histories of the seven patients reflect a range of factors including sleep patterns, anger management, substance use disorder, and family medical backgrounds. Patient 1 experienced disturbed sleep and anger issues. Patient 2 had normal sleep, anger issues, avoided tobacco and alcohol. Patient 3 dealt with disturbed sleep, maintained a calm temperament, avoided tobacco and alcohol. Both Patients 4 and 5 avoided tobacco, had histories of alcohol use, normal sleep, annoying behaviour. Similar to Patients 4 and 5, Patient 6 avoided tobacco, reported normal sleep, but had a family disease history (father). Lastly, Patient 7 had slightly disturbed sleep, abstained from tobacco and alcohol, and reported a family history of chronic kidney disease (grandfather), whereas patient 1,2,3,4,5 had no family history of any kidney disease.

2.2 Past medical history

The past medical histories of these patients show a variety of health conditions in addition to their CKD diagnoses. Patient 1 reported anemia and general body weakness, while Patient 2 had gastric issues and hypertension. Patient 3 experienced anxiety and disturbed sleep, and Patient 4 had a history of diabetes, coronary artery disease and hypertension as evident in Patient 5 reported ankle and thigh pain along with a liver cyst. Patient 6 had hypertension, diabetes and thyroid issues. Patient 7 presented with pedal edema, nausea, vomiting, and disturbed sleep. Together, these histories reflect the diverse and complex health challenges faced by these patients.(**Table 2**).

Table 1: Demographical data of all patients suffering from CKD.

Parameter	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7
Age	34	53	40	63	60	54	29
Gender	Female	Male	Male	Male	Male	Female	Female
Diagnosis	Renal Parenchymal disease, CKD	CKD	CKD	CKD	CKD	CKD	CKD

Table 2: Pre and post physiological & biochemical assessment

Parameters	**Patient 1**		**Patient 2**		**Patient 3**		**Patient 4**		**Patient 5**		**Patient 6**		**Patient 7**		**Bio. Ref. In**
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	
Vital															
Blood Pressure (mmhg)	137/68	130/72	140/90	130/90	155/110	135/105	150/86	135/86	189/109	140/96	120/85	118/83	104/66	110/70	120/80
Pulse (bpm)	57	64	92	93	89	83	74	76	80	78	70	72	78	81	72
Weight (Kg)	47	50	48	50.3	63	64.1	58	57	57	59	50	52	38	41	.....
Height (cm)	161		168		161		173		173		148		159		.....
CBC Profile															
Haemoglobin (g/dL)	6.5	10.3	9.3	11.7	10.1	11.7	10.2	12.5	6.6	8.2	8.4	11.8	5.8	7	F 12-16, M 14-17
Total leucocyte count (/cumm)	3200	5500	3910	4510	11200	8190	7620	4260	6650	5700	3340	4600	7550	4500	4000-11000
Total RBC count (Million/cumm)	3.11	3.38	2.94	3.98	2.78	4.27	3.12	4.75	3.3	2.56	2.41	3.16	2.18	2.01	3.5-5.5
Renal Function Test															
Serum Creatinine	5.55	2.34	5.66	2.41	2.12	0.9	5.6	4.5	13.5	5.33	7.64	3.82	10.86	5.58	0.6-1.30
Blood Urea	84	68	58.8	34.4	64.1	19.6	110.8	67	228.6	91	198.4	72.4	218.1	138	13-43
Serum electrolytes															
Sodium	143	140	146.3	136	139.5	143	140.7	134.3	140	146	130.1	115.1	140	144	135-145
Potassium	3.25	4.4	3.6	4.34	4.01	4.03	4.7	4.1	4.42	4.16	4.62	3.85	4.41	4.52	3.5-5.0
eGFR	90	75	51	72	43	71	10	13	12	37	6	13	26	67	>90
Calcium	7.89	9.25	8.5	7.2	8.4	6.4	8.4	8.9	4.56	8.6	7.3	8.7	4.56	7.8	8.5-10.5
Phosphorus	6.2	4.2	3.4	4.6	2.8	4.2	4.6	4.4	6.8	4.5	8.48	4.58	7.2	3.9	2.4-5.1
Urine Analysis															
Urea Albumin	78	42	38	24	63	33	57	29	49	18	56	42	79	37	<10
Urea Creatinine	1857	1235	2275	1367	1987	832	2249	1497	1783	877	1268	1096	1754	963	55-96

3. Timeline

Table 3: Detailed timeline showing chronological data of treatment regimen followed by patients.

Sr.No	Admission Date		Total Stay	Discharge			Follow up visit
				1st	2nd	3rd	4th
Patient-1	24-02-2024	7 days	02-03-2024	17-03-2024	16-04-2024	15-04-2024	17-05-2024
Patient-2	21-11-2023	7 days	28-11-2023	13-12-2023	12-01-2024	12-02-2024	13-03-2024
Patient-3	13-09-2023	7 days	20-09-2023	04-10-2023	03-11-2023	02-12-2023	03-01-2024
Patient-4	06-05-2024	7 days	12-05-2024	26-05-2024	25-06-2024	26-07-2024	27-08-2024
Patient-5	10-06-2024	10 days	20-06-2024	04-06-2024	05-07-2024	04-08-2024	07-09-2024
Patient-6	06-07-2024	7 days	12-07-2024	26-07-2024	25-08-2024	27-09-2024	27-10-2024
Patient-7	10-06-2024	10 days	20-06-2024	04-06-2024	06-07-2024	05-08-2024	07-09-2024

Table 4: Therapeutic intervention for CKD patients

Yoga Asana & Pranayamas	Naturopathy Treatment	Special Diet
Morning: *Anulom-Vilom* (2 Hours/day), *Bhramari* (10 Min), *Udgith* (5 Min), *Shavasan* (10 Min), *Vakrasana* (2 Min), *Vajrasan* (5-10 Min), *Ardhamatshyendrasana* (2 Min), *Gomukhasana* (2Min), *Mandookasan* (5Min), *Yogmudrasan* (2 Min), *Pawan Muktasan* (2 Min), *Shalabhasana* (2 Min), *Tadasana* (1 Min). Arm & Shoulder Exercise (2 Min), Neck Exercises (2 Min), Slow Yogic Jogging without Jumping (2 Min).	Therapies: Hot Hip Bath (15 Min), Hot Foot Bath (Two times a day for 10 Min at 104- 109 °F), Hot Compress with Ginger and Turmeric pack (20 Min), Kidney pack (15 Min), NIB (Neutral Immersion Bath for 15 min at 94 – 98 °F), Dry Abdominal Thermal Pack (60 Min), Calf Lapet (60 Min), Sun Bath (30 Min).	Morning & Afternoon: 4:30-5:00 am (Dhaniya + Gokhru pay/ Barley water). 7:30- 8:00 am (VDHQ[1]+ Gokharu Qwath/ Arjun Qwath/ Survkalp Qwath). 8:00-9:00 am (Neem-Pippal juice), Papaya/Apple/pear. 11:00 am-1:00 pm (Jau daliya, Jau Roti-2, Kulthi Dal Soup/ Lauki Soup, Boiled Parmal/Lauki/Torai/Tinda). 1:30-2:30 pm (Punarnava pay). Dhaniya extract liquid (1st half in a day)
	Panchakarma: Kidney Basti, Parishek with sarvkalp and Vrikkdoshhar kwath (30- 40 Min), Shiropichu (2 to 3 Hour).	Evening & Night: 5:00-6:00 pm (Heam juice/ Neem- Pipal Juice/ Petha Juice, Roast Chana). 7:30-8:30 pm (Kulthi Dal Soup, Boiled Parmal/ Torai/ Tinda/Lauki, Chhaina (50 gm), Jau Daliya/ Jau Roti). 2nd Half in a day- (Amla/Giloy/Gokhru Pay).

Table 5: Prescribed ayurvedic medication chart for the treatment of CKD.

Medicine Name	Ingredients	Daily Dose	Mechanism of Action	References
Divya Sarvakalp Kwath	Punarnava (Boerhaavia diffusa), Bhumi amla (Phyllanthus niruri), Makoy (Solanum nigrum)	100 ml, Only one time before meal	Sarvakalp qwath showed efficacy in reducing intracellular triglyceride accumulation and increasing extracellular glycerol release. It's also showing hepatoprotective activity.	[13]
Divya Vrikkdoshhar Kwath	Dhak,Pittpapda, Punarnavamool, Pashanbhed Varun, Kulthi, Apamarg, Kasni, Peepal, Neem, Makoy, Gokharu, Dhamasa, Kush, Kas, Dhan, Sarkanda, Ekh, Untkatara, Giloy, Arni, Amaltas, Bala, Shatavari, Vidari, Kateri Chhoti, Kateri Badi, Jou, Kutaki	100 ml, Only 1 time before meal	Vrikkdoshhar qwath contains Mutral Dravyas, which are classified as Mutravirechaniya in Charak Acharya's Dashemani, and are regarded as highly effective diuretics. It helps treat kidney infections by reducing oxidative stress and reversing oxidative damage.	[14]
Divya Renogrit	Apamarg, Pashanbhed, Palash, Varun, Punarnavamool, Kasni, Gokharu	2 tablet, thrice a day by lukewarm water	Research indicates that Renogrit regulates renal injury markers (KIM1, NAG, NGAL mRNA), redox imbalance (ROS, GST), and mitochondrial dysfunction (membrane potential, SKN1, HSP60). It also modulates apoptosis (EGL1, pERK, pJNK, pp38, cPARP1), necroptosis (calcium, RIPK1/3, MLKL), mitophagy (lysosome population, PINK1/PDR1, LC3B), and inflammation (IL1β, LXRα).	[15]
Divya Trighan	Gokhru, (Tribulus Terrestris)	2 tablet, thrice a day by lukewarm water	Gokhru notably reduced levels of blood urea nitrogen, serum creatinine, malondialdehyde (MDA), liver fatty acid-binding protein, kidney injury molecule-1, and kidney mercury, while enhancing glutathione, superoxide dismutase, and glutathione peroxidase levels.	[16]

4. Physical examination and clinical findings

Upon arriving at Patanjali Wellness Hospital, all patients underwent a thorough a detailed examination to evaluate the impact of the disease. A series of tests and scans (abdominal ultrasound (USG) and Doppler) were conducted for a comprehensive assessment and management plan. Initially, vital parameters such as temperature, pulse, blood pressure,height, and weight were recorded. Additionally, essential diagnostic tests including urinalysis, kidney function tests, and complete blood count (CBC) were performed both before and after treatment to assess their physiological and biochemical status parameter **(Treatment Schedule**

As part of the treatment regimen, a customized treatment plan for management of CKD including yoga asanas, pranayama practices, naturopathy therapies, medication and a diet management plan was designed based on their symptoms and biochemical parameters as outlined in the (**Table 4**, and **Table 5**)

5. Outcomes and Follow-ups

The patient's initial assessment revealed, elevated creatinine and urea levels in all cases. The patient-reported outcomes (PROs) reflected the positive impact of the integrative treatment approach on CKD patients. The integration of complementary and Integrative Medicine (CIM) demonstrated promising results in the management of chronic kidney disease (CKD) among the seven patients studied. After treatment, notable changes were observed in vital signs such as temperature, pulse, blood pressure and weight. At discharge, all patients showed significant improvement in symptoms and biochemical parameters, which returned to normal ranges. At baseline, all patients exhibited elevated serum creatinine (range: 2.1–13.5 mg/dL) and blood urea levels (range: 58–228 mg/dL), indicating significant kidney impairment. Post-treatment, these parameters showed notable improvements, with an average reduction of 27% in creatinine levels and 35% in urea levels (**Figure 1**). Additionally, blood pressure readings stabilized within the target range (120/80 mmHg ± 10), symptomatic relief was reported for issues such as pedal edema, nausea, and insomnia. Positive changes were seen in the condition of patients, and their quality of life (QoL) was also significantly improved. Uroflowmetry test indicate no obstruction in urine outflow. As well as protein, creatinine levels, and the urine Albumin-creatinine ratio (uACR) are within the normal range. After discharge, patients had their first follow-up after 15 days, followed by monthly telephonic follow-ups for next 3 months.(**Table 3**) The final follow-up involved an in-person visit to review updated reports and assess progress.

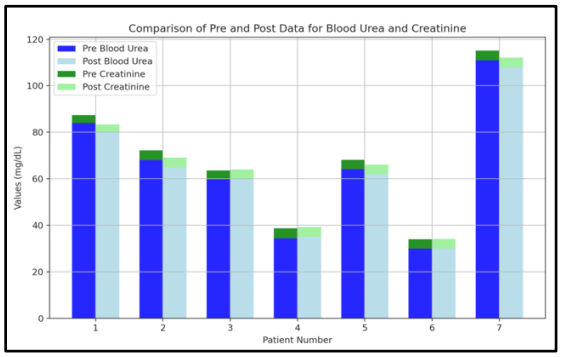

Figure 1: Comparison of pre and post data for blood urea and creatinine.

6. Discussion

This study emphasizes the potential of integrated therapies such as yoga, naturopathy, Ayurveda, and dietary interventions in managing chronic kidney disease (CKD). Conventional treatments like dialysis and transplantation are often financially burdensome and inaccessible, these integrated therapies offer a holistic approach, effectively addressing the multifaceted challenges associated with CKD. Around 18% of dialysis patients have utilized alternative therapies.[5] Yoga and pranayama contribute to both physical and mental well-being, providing benefits such as improved cognition, respiration, lower BMI and reduced oxidative stress, while enhancing pulmonary and autonomic function.[17] Adopting a yogic lifestyle, which includes a balanced diet (Aahar), physical activity and cleansing techniques (Aachar), relaxation (Vihar), and a positive mindset (Vichar), helped improve overall physical as well as psychological health.[18] In naturopathy, the treatment is focused on non-invasive treatments like lifestyle modifications and nutrition, rather than medical or surgical interventions.5 Diet plays a crucial role in CKD management, a vegetarian or low-protein diet has been linked to a reduction in uremic toxins, a plant-based diet rich in fruits, vegetables, seeds, and whole grains, which when added with bioactive nutrients, may also help slow the progression of CKD.[19] Ayurvedic medicine, such as Sarvakalp Kwath and Renogrit® have been shown to enhance kidney function by reducing oxidative stress and inflammation, as confirmed by post-treatment laboratory results[13,14], while, Gokhru Kwath is known for its diuretic and nephro-protective properties, as evidenced by the reduction in creatinine levels observed in this study.[20] By combining yoga asanas, pranayama, naturopathy, and specialized dietary plans has led to significant improvements in patients biochemical and physiological parameters. These complementary interventions not only slow CKD progression but also provide cost-effective alternatives to conventional treatments. Furthermore, all patients reported an improved quality of life, with reduced fatigue and increased energy levels in follow-up assessments. The absence of side effects and the comprehensive nature of complementary and integrative medicine (CIM) make it a viable, affordable, and effective option for managing CKD. (**Table 2**)

7. Conclusion

The rising global incidence of renal disorders, such as CKD, highlights the need for new and comprehensive approaches to patient care. This case series emphasizes the effectiveness and safety of alternative therapies when conventional treatments such as pharmaceuticals, dialysis, and transplantation not effectively provide complete recovery and incur high costs. The study then shifts its focus to complementary therapies, including herbal medicine, yoga & pranayama, dietary supplements, naturopathy and mind-body practices. At the core of this research is the concept of integrative therapies, which offer a patient-centred, holistic approach. Through detailed case studies, the series showcases how these therapies have notably improved recovery and enhanced patient outcomes. The findings reveal the considerable potential of integrative therapies improving the quality of life for individuals with renal diseases like CKD. However, the study emphasizes the need for further

research and large-scale trials to address existing knowledge gaps and explore areas requiring deeper investigation.

8. Acknowledgment

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9. Conflict of Interest

None.

10. Informed Consent

A written informed consent was signed and obtained from all participants before publishing the data obtained through this study.

11. Ethical Considerations

This study was prepared according to CARE guidelines for conducting Case-Reports.

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