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MANAGEMENT OF CHRONIC KIDNEY DISEASE USING *AYURVEDIC* TREATMENT PROTOCOL

A REVIEW BASED ON PUBLISHED CASE REPORTS

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Abstract

Chronic Kidney Disease (CKD) is a multifaceted progressive deterioration of renal function. Its furtherance is often undetected and paves way to a pervasive and insidious health crisis. Methodology: A review of published cases was planned to explore the efficacy of Ayurvedic management in improving renal function and other symptomatic parameters in CKD. A comprehensive literature search of case studies in Google Scholar and PubMed spanning five years was conducted. The studies that fulfilled the inclusive criteria were included in the review. Based on this conclusion, an in-depth interview of five experts treating CKD from Malappuram, Kerala was done. The interpretations of both the review of published case reports on ayurvedic management of CKD and in-depth interview were statistically represented. Result: Out of 22 identified case reports, 14 met the inclusion criteria for analysis. The mean age of the subjects was 51.58 years, with 71.4% males and 26.8% females. Following Ayurvedic treatment, notable improvements were observed in serum creatinine, serum urea and e-GFR. Conclusion: This case based review suggests that Ayurvedic treatment can contribute to improving the quality of life of CKD affected patients. However, inconsistencies in methodology and lack of standardized diagnostic criteria underscore the need for large-scale, high quality clinical trials to confirm these findings and establish the efficacy and safety of Ayurvedic formulations in CKD management.

Keywords: Chronic kidney disease, Ayurveda, GFR, Dialysis, CKD

Introduction

Chronic kidney disease (CKD) is a group of pathophysiological processes associated with poor kidney function and accelerating decline in glomerular filteration rate. It is emerging as a global threat, reducing life expectancy, causing immense health expenditure thereby dilapidating an individual. CKD is characterized by disrupted kidney function for more than three months. It may also be understood as a kidney condition with glomerular filtration rate (GFR) <60 mL/ min/1.73 m2, raised biomarkers (i.e., albuminuria, urine sediment abnormalities, electrolyte imbalance, histological abnormalities, structural abnormalities, and kidney transplant histories).1 Diabetes and hypertension constitute the major risk factors of CKD. It is often left unnoticed at the early stages and generally diagnosed later as the patient remains asymptomatic for a long time.2 Confirmed diagnosis is made after the routine investigations of urine and blood, i.e., proteinuria, serum creatinine levels, GFR and kidney biopsy. Eventually, reduction in the excretory, metabolic and humoral functions of the kidney leads to the development of the clinical symptoms of renal failure, or uremia.3 Proteinuria is often indicative as the risk of disease progression and death. The final stage when renal replacement therapy [RRT] is needed to prevent death is called end-stage renal failure (ESRF).[4]

Incidence

The incidence of chronic kidney disease in India, which is a densely populated country with low income, multiple cultural traditions and lifestyle habits, is 7.85 million CRF patients of its 1 billion population and the prevalence rate is 0.78%.

Background

Existing treatment protocols

CKD patients are usually required to undergo treatment modalities such as dialysis and kidney transplantation in later stages of CKD, even though they are not easily affordable by all. Today, over 1 million people worldwide undergo dialysis or have a functioning graft. As per the December 2021 index declared by Rajya Sabha, the per capita income in rupees in India is 20,734 per annum. The total population is 121 crores of which 26% live below the poverty line (BPL) where the daily earning is ₹10 only. The monthly cost of hemodialysis (HD) in most private hospitals averages 12,000 rupees and the yearly cost of dialysis is 1,40,000 rupees. The average cost of a kidney transplant varies from 50,000 rupees in a government set-up to 3,00,000 rupees in a private hospital. Also, the yearly maintenance post-transplant for the drugs amounts to 120,000 rupees per year or 10,000 rupees per month.[5] The socio-economic consequences of CRF are thus considerable and therefore, exploration of a safe and affordable alternative is imperative to improve the quality of life as well as the life expectancy of the patient.

This evidence-based review was attempted to evaluate the prevailing treatment protocols in Ayurvedic management of CKD to provide a comprehensive understanding for future researchers. By analysing the types of evidence available on researches that have been conducted, this review also aims to identify gaps in the field.

Methodology

This review of published case reports on ayurvedic management of CKD was done to identify the lacunae, consolidate the existing knowledge and correlate with the treatments in current Ayurvedic practice. The review was done as a six-stage iterative process: identifying the research question, locating relevant studies, selecting studies, charting the data, summarizing and cross checking the results with current day medical practice and drawing conclusions.[6] The literature search was attempted with electronic databases such as PubMed and Google Scholar. Relevant medical keywords, including “chronic kidney disease,” “chronic renal failure (CRF),” “Dialysis,” “Ayurveda” and “GFR,” were employed. Additionally, cases reported under CKD or CRF treated using Ayurveda alongside conventional therapies were manually screened for inclusion. The review involved a systematic search of published case reports on the efficacy of Ayurvedic management in CKD. A total of 22 case reports were identified through electronic databases, including Google Scholar (n = 21) and PubMed (n = 1). After removing 2 duplicate records and 6 that did not satisfy inclusion, 14 studies remained for detailed analysis. Case studies were excluded if they contained incorrect recommendations, duplicate data, or insufficient information related to reporting standards.

Review of published case reports

Research question

Is Ayurvedic treatment protocol for CKD effective in improving renal function based on published case reports?

Study selection

(i)Case reports published between January 2019 and December 2024, with abstracts, titles, or both were reviewed to determine relevance for further investigation; full-text reports were analyzed based on CARE guidelines;

(ii) Cases involving patients diagnosed with CKD with clinical features consistent with kidney disease improving growth outcome (KDIGO) criteria;

(iii) Cases treated with Allopathy, Ayurveda and other CAM systems.

Type of interventions*:*

This review included cases treated with Ayurvedic preparations such as extracts, powders of single herbs or compounds, and Ayurvedic proprietary medicines. Reports with Ayurvedic interventions in combination with conventional treatments for renal disorders were referenced to provide a comprehensive perspective.

Type of outcome:

The outcomes assessed included at least one kidney function parameter such as serum creatinine, serum urea or e-GFR or a symptomatic alteration was noted.

Following this, an in-depth interview with 5 experts practicing Ayurvedic management for CKD from the Malabar region in Kerala was conducted to correlate associated findings with current day medical practice. Their observations were digitally recorded and statistically represented.

In-depth interview

Questionnaire formulation

(i)An expert in research methodology was identified from VPSV Ayurveda College to assist in the formulation and reviewing of in-depth questionnaire.

(ii)Discussions were held to formulate domains to lead this in-depth questionnaire.

(iii)A draft of the questionnaire to be administered was attempted and sent for review, following which relevant alterations to the questionnaire structure were made.

Selection of experts

Snowball sampling was attempted to locate five private practitioners treating CKD.

Administering of questionnaire

A questionnaire was formulated with nine closed ended and one open ended questions along with optional additional observations to be mentioned under each question. Closed ended questions carried five options each. All experts were telephonically approached to participate in the same.

Data collection and analysis

Description of included records

This review includes 14 records satisfying essential study characteristics, title, type of intervention (oral/*kriyakramas*) and interventions used, duration of use and description of outcomes.

Study selection

A total of 22 case reports were initially identified from databases such as Google Scholar (*n* = 21) and PubMed (*n* = 1). After the removal of duplicates (*n* = 2) and studies that did not satisfy inclusion criterion (*n* = *6*), 14 unique case reports were included for detailed review.

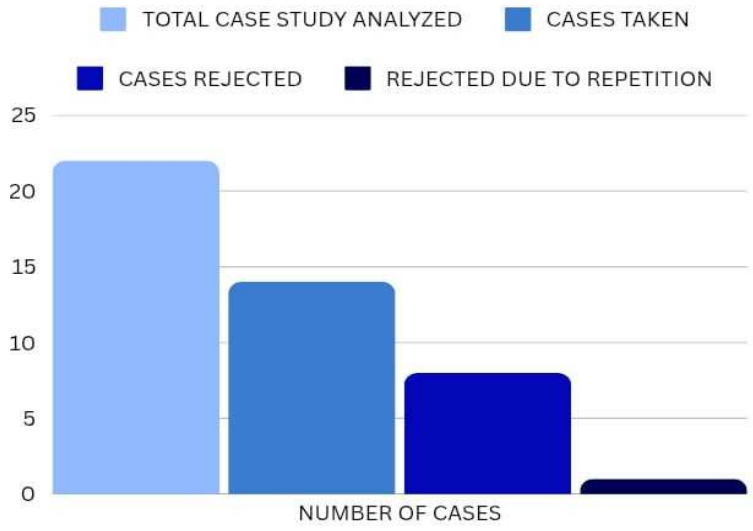

Figure 1: Number of cases identified and selected

Characteristics of case reports

Demographics

Most cases were male (66.67%), and the mean age was 51.58 years. Patients had varying stages of CKD, with baseline kidney function parameters provided in most studies.

Gender prevalence

In 14 enrolled cases, 10 were reported as males and four were females. The other two case reports included an assessment of 100 patients (68 male and 32 female) and 266 patients (182 males and 84 females) respectively. The estimated prevalence of CKD in the study is 71.4% in men and 28.6% in women.

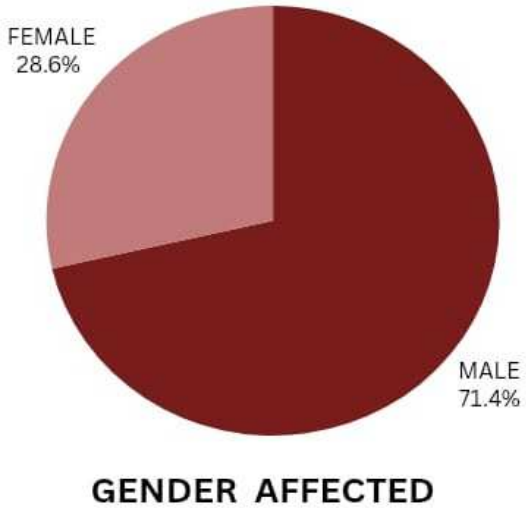

Figure 2: Gender prevalance

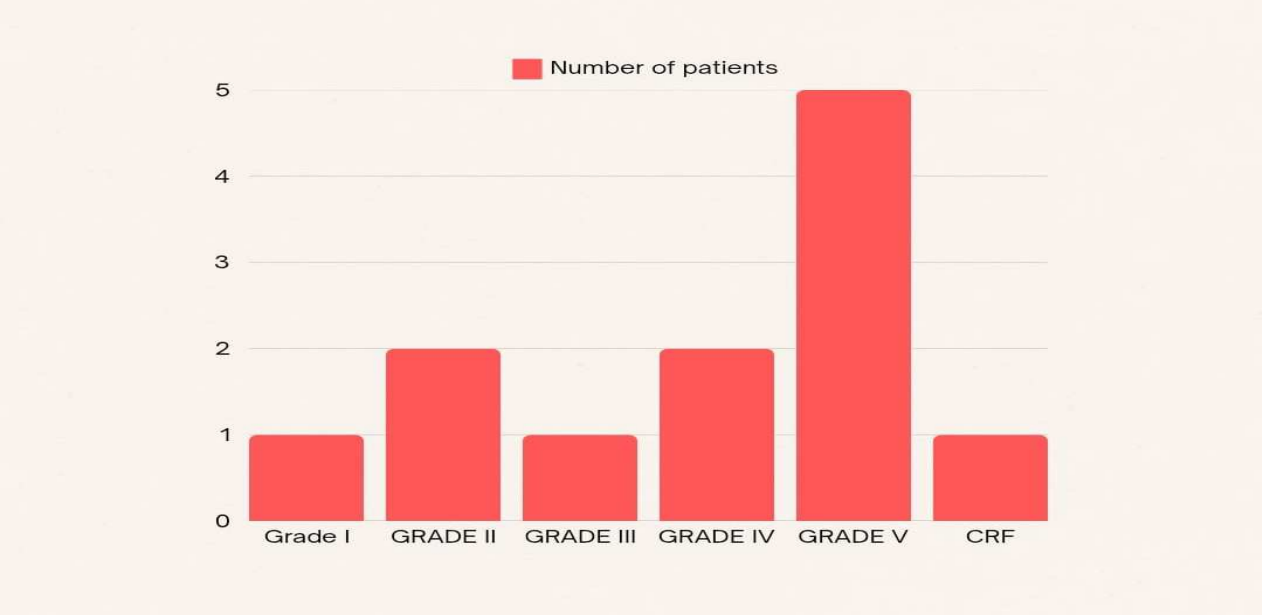

Figure 3: Reporting of grades of CKD observed

Diagnostic criteria

Diagnosis was primarily based on KDIGO criteria, which included e-GFR <60 mL/min/1.73 m², Sr. Cr >1.3 mg/dL, and serum urea >70 mg/dL for a month.[7]

Therapeutic interventions [8-20]

All included case reports utilized Ayurvedic interventions, including herbal medications and treatment procedures. Single herbal preparations were used as decoctions. Single herbal formulations used as *Choornas*, tablets and *Arka* for the treatment of CKD included *Punarnava Mandoora*(2 tab BD), *Abhra bhasma tab*(2 tab BD), *Gokshura Churna*(5g BD), *Pravala bhasma*(5g BD), *Haridra Churna* (5 g BD) and *Gomutra Ark* (15 mL BD) for 1 month.

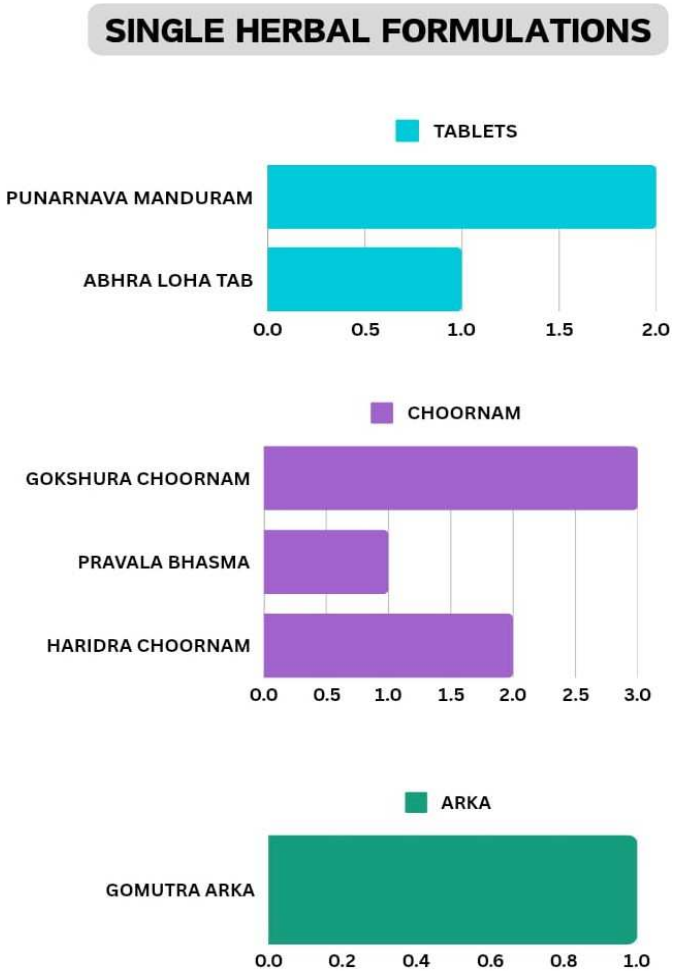

Figure 4: Single herb formulations used

Polyherbal formulations:

Gokshuradi Guggul 500 mg BD, *Punarnavasav* 20 mL BD, *Chandanavasav* 20 mL BD, *Lohasav* 20 mL BD, and *Varunadi Kwath* (TK) 40 mL BD, *Punarnavadi Kwath* (TK) 40 mL BD, *Brhtyadi Kwath* (TK) 40 mL BD, *Trinpanchmula Kwath* (TK) 40 mL BD and *Trinpanchmula Kwath* (TK) 40 mL BD are the polyherbal formulations reported in treatment protocols of CKD along with herbo-mineral compounds such as *Chandraprabha vati* 500 mg BD, *Ashmarihara rasa* 10 mg BD and *Arogyavardhana vati* 250 mg BD for 3 months.

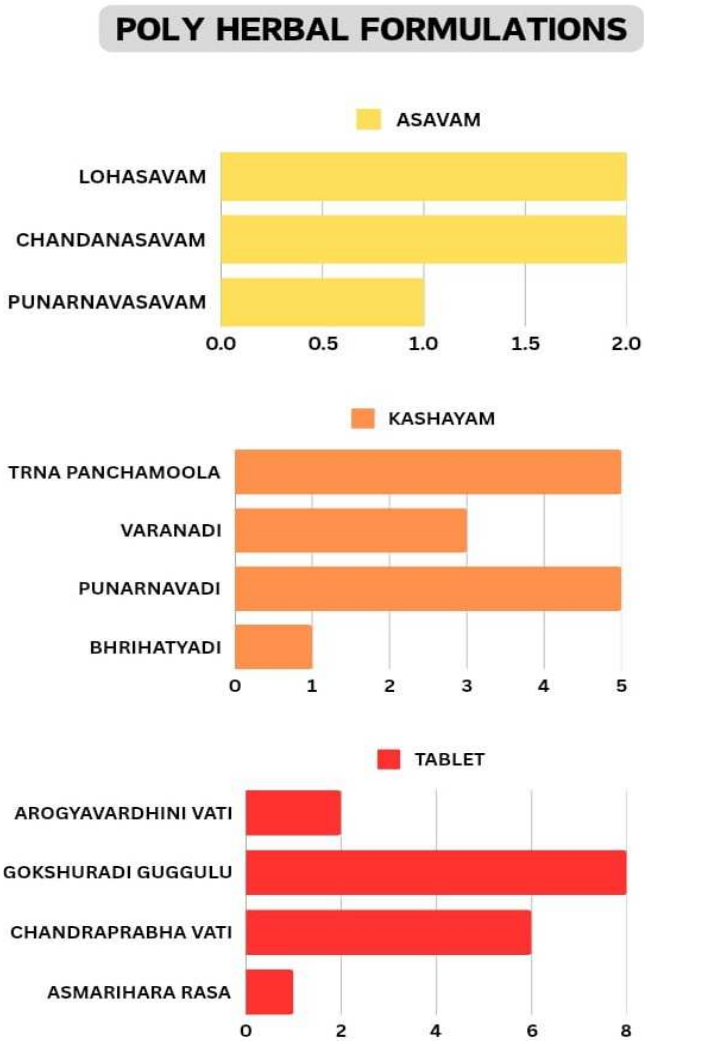

Figure 5: Polyherbal formulations

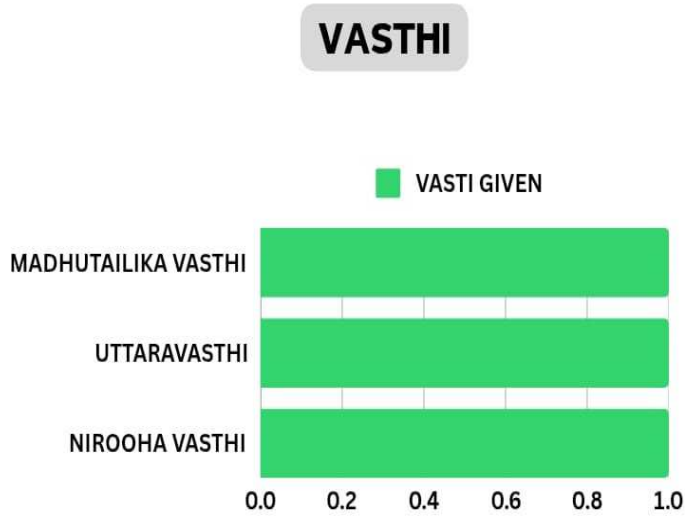

Figure 6: Therapeutic measures used

Outcome parameters

Kidney function tests

Improvements in serum creatinine levels were reported in most cases (12), with reductions ranging from 5 to 3 mg/dL. Serum urea levels showed reductions ranging from 125 to 77 mg/dL. e-GFR improved in five of 14 studies, with increases reported between 22 and 65 mL/min/1.73m^2.

Change in symptoms

Change in symptoms reported in the 14 cases, including mean serum creatinine (before treatment - 5.22; after treatment - 3.21); mean serum urea (before treatment - 124.23; after treatment - 80.12); mean e-GFR (before treatment - 40.24; after treatment - 26.55).

Quality of reporting

Most of the case reports had significant lacunae including limited diagnostic detail, such as laboratory investigations, lack of standardized outcome measures, inconsistent follow-up durations and incomplete reporting of long-term outcomes.

Results

Overall findings

This review highlights a potential role for Ayurvedic management in CKD, assessed through improvement in kidney function parameters (serum creatinine, serum urea, and e-GFR) and alleviation in symptomatic dimensions.[7,21,22] However, the lack of high- quality, standardized case reports limits the reliability and generalizability of the findings

Table 2: Unit change in Sr. Cr, Sr. urea, e-GFR and hemoglobin levels (Hb%) before and after intervention

S.No.	Age	Sex	Renal Function Parameters									
			Sr.cr.		Sr.urea		e-GFR		Urine protein		Hb%	
			BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
01.	69yr	M	3.9	1.21	59.8	50	-	-			9.5	10.8
02.	81yr	M	5.1	2.1	218	90	-	-	-	-	-	-
03.	41yr	F	5.2	2.0	143	100	-	-	2+	1+	-	-
04.	35yr	M	3.16	2.99	85	50	-	-	2+	absent	14.2	14.3
05.	53yr	M	7.0	4.4	215.3	99.0	-	-	-	-	8.4	8.8
06.	55yr	M	9.24	5.3	205.9	80	-	-	3+	trace	7.8	9.3
07.	53yr	F	5.97	3.0	82.6	50	8	17	-	-	-	-
08.	38yr	M	6.6	4.3	69	49	4	12	2+	trace	12.7	13.0
09.	41yr	F	5.2	2.0	143	100	-	-	2+	1+	-	-
010.	55yr	M	13.3	7.9	315	200	-	-	-	-	-	-
011.	56yr	M	2.02	0.75	40.2	30.2	38	106	-	-	-	-
012.	35yr	F	0.60	0.34	50	45	66.1	124	absent	absent	-	-
013.	53yr	F	7.32	4.3	96	91	-	-	2+	1+	10.7	11.6
014.	28yr	M	-	-	-	-	74.84	101.74	-	-	-	-

In – depth interview

Outcome measurement

Five experts treating CKD were identified from Malappuram district of Kerala. Nine closed ended questions with five options each and one open ended question was administered. The nidana of CKD was concluded to span across different domains including viruddha ahara, metabolic disorders with prevalance mostly observed in males of above 40 years of age. Almost all grades of CKD were equally observed clinically. The therapeutic measures include administration of *kwatha choorna*, tablets and ayurvedic proprietary medicines along with *kriyakramas* including *vasthi*. An integrative approach of multiple systems of medicine was found to be most efficient in the symptomatic progress of CKD patients. Eventhough 12% responses were in favour of mortality and morbidity

post Ayurvedic treatment, 88% responses were in favour of symptomatic betterment. Even then, 100% consensus was recorded on the fact that weeks would be taken to record any symptomatic change in CKD.

Discussion

This review of published case reports revealed an array of standardized Ayurvedic managements for CKD. There were a total of 14 case records and most studies demonstrated significant improvement in biochemical markers and symptomatic parameters. The protocols mostly focused on symptomatic management, with limited assessment of biochemical markers. Our findings also highlight the role of Ayurveda in management of CKD but underscore the need for robust clinical trials to validate the efficacy of Ayurvedic interventions. Serum creatinine values of reported patients decreased in the range of 17.7%–13%. The value of e-GFR ranged from 4 to 124 mL/min. Before treatment the maximum value of serum urea reported was 315 mg/dL and after treatment minimum value reported was 32. Serum urea reduced in the range of 15.2%–100%. Ayurvedic supplementations significantly decreased serum creatinine, serum urea and increased e-GFR thus emphasising the efficacy of the Ayurvedic treatment protocols in CKD.

Conclusion

This is an attempt to assess the effects of Ayurvedic interventions on CKD, providing evidence for their potential as encouraging agents in its treatment. From the data collected, significant improvement was noticed in biological parameters such as serum creatinine, serum urea and e-GFR values. Ayurvedic measures thus also have a prospective effect on symptomatology. The establishment of the efficacy of herbo- mineral preparations should be done through more large-scale and high-quality clinical trials.

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