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A Case Study on the *Ayurvedic* Management of End-Stage CKD with Type II Diabetes Mellitus and Hypertension: Restoring Balance and Health

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Abstract

Chronic Kidney Disease (CKD) often coexists with Type 2 Diabetes Mellitus (T2DM) and hypertension, significantly increasing the risk of kidney damage. T2DM, especially, can lead to diabetic nephropathy through hyperglycemia-induced glomerular damage, while hypertension accelerates kidney damage by increasing vascular resistance. This combined pathology leads to a faster progression to kidney failure. This case study explores the management of a 68-year-old male patient with end-stage CKD, T2DM, and hypertension, using an integrative *ayurvedic* approach alongside conventional treatment. The patient, with a 15-year history of insulin-dependent T2DM and one year of hypertension, The holistic approach aimed to balance the *doshas*, support metabolic digestion (*Agni)*, and detoxify the body, ultimately improving the patient's overall health. The case highlights the potential benefits of combining Ayurveda with conventional medicine to manage complex, chronic conditions like CKD, T2DM, and HTN. The importance of individualized treatment plans, close monitoring, and integrative care in managing these chronic diseases is emphasized.

Keywords: Chronic Kidney Disease (CKD), Ayurveda, *Panchakarma*, Type II Diabetes Mellitus, *Vathaj pandu,* Hypertension, *Madhumeha*.

Introduction

Chronic Kidney Disease (CKD) is a condition in which the kidneys gradually lose their ability to filter waste products and excess fluid from the blood. This can lead to a buildup of harmful substances in the body. CKD can progress to kidney failure if left untreated, requiring dialysis or a kidney transplant [1, 2]. When CKD coexists with Type 2 Diabetes Mellitus (T2DM) and hypertension (high blood pressure), the risk of kidney damage increases significantly. These two conditions are among the most common causes of CKD [1, 2, 5]. Diabetes, particularly Type 2, is one of the leading causes of kidney disease. High blood sugar levels associated with T2DM can damage the blood vessels in the kidneys over time, reducing their ability to filter blood efficiently. This damage, known as diabetic nephropathy, can progress to end-stage renal disease (ESRD) if not managed effectively. In fact, about one-third of people with diabetes will eventually develop kidney disease [1, 2, 3, 5]. Hypertension is another major contributor to CKD. High blood pressure puts extra strain on the kidneys' blood vessels, leading to damage. Over time, this can impair kidney function and promote the development of CKD. Hypertension is both a cause and a consequence of kidney disease, creating a vicious cycle where kidney dysfunction can worsen blood pressure control, and vice versa [6, 8, 10, 14]. When T2DM and hypertension occur together, the risk of kidney damage is compounded. Both conditions independently contribute to kidney dysfunction, and together, they create a significantly higher risk of kidney failure. The presence of both conditions increases the likelihood of kidney damage, accelerates disease progression, and complicates management. Furthermore, patients with T2DM and hypertension are at greater risk for other complications, such as cardiovascular disease, which can further complicate kidney health [6, 7, 8, 9].

Modern studies continue to investigate the molecular and systemic mechanisms by which T2DM and hypertension contribute to CKD. Recent research has further elucidated how chronic hyperglycemia damages the kidneys through increased glomerular pressure and oxidative stress, which leads to endothelial dysfunction and fibrosis in kidney tissue (Chung *et al*., 2023). Studies have highlighted that long-term diabetes can directly impair glomerular filtration rate (GFR)

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and increase albuminuria, which are markers of kidney damage. Hypertension accelerates kidney damage by raising intrarenal vascular resistance, reducing renal blood flow, and increasing pressure within the glomerulus. New studies have confirmed that persistent high blood pressure not only worsens diabetic nephropathy but also directly causes glomerulosclerosis, which leads to a faster progression of CKD.

In Ayurveda, Chronic Kidney Disease (CKD) coexisting with Type 2 Diabetes Mellitus (T2DM) and hypertension can be understood through the lens of imbalanced *doshas* (body energies) and poor metabolic functioning. Ayurveda emphasizes a holistic approach to disease, focusing on balancing the body's energies, promoting detoxification, and addressing underlying causes rather than just treating symptoms. In Ayurveda, the kidneys are considered vital for filtering and removing waste and excess fluids from the body. *Vata* and *Kapha doshas* are primarily associated with kidney function. The kidneys' role in maintaining fluid balance and filtering toxins aligns with the *Ayurvedic* understanding of the body's need to balance *apana vata* (the downward-moving energy) and *udana vata* (the upward-moving energy) for proper excretion [3, 9, 11, 14].

In the case of CKD, *Vata* and *Kapha* imbalances can lead to a depletion of *Ojas* (vital energy), which results in fatigue, weakness, and impaired kidney function. The accumulation of *Ama* (toxins) in the body from metabolic waste, improper digestion (known as *Agni*), and poor elimination contributes to kidney damage. When chronic imbalances persist, it can lead to further *Dhatu Kshaya* (tissue degeneration), affecting the kidney's structure and function. In Ayurveda, Type 2 Diabetes (*Madhumeha*) is often linked to the *Kapha dosha* due to its association with excess fat, sluggish metabolism, and the accumulation of toxins. This condition is also closely tied to *Ama* (toxins), which block the channels in the body and disrupt the *Agni* (digestive fire). When *Kapha* is imbalanced, it leads to the production of excess *Meda* (fat), which affects the pancreas, impeding its ability to properly regulate blood sugar. The excess sugar in the blood (high blood glucose) leads to increased thirst, urination, and fatigue. *Ayurvedic* treatment for *Madhumeha* focuses on reducing excess *Kapha* and improving *Agni*, digestion, and metabolism, which can help control blood sugar levels and prevent complications like kidney damage. Hypertension in Ayurveda is primarily related to the imbalance of the *Pitta dosha*, which governs heat, intensity, and transformation in the body. When *Pitta* is aggravated, it can lead to increased circulation, rising blood pressure, and inflammation, which can damage blood vessels, including those in the kidneys. Additionally, *Vata* imbalances can also play a role in hypertension, causing instability in the nervous system and vascular tone, which further elevates blood pressure [11, 13, 12, 15]. When CKD, T2DM, and hypertension coexist, they often point to a profound imbalance in the body's *doshas,* especially *Vata, Kapha*, and *Pitta.* The simultaneous presence of these conditions is seen as a result of poor metabolic digestion and accumulation of *Ama* (toxins), leading to *Dhatu Kshaya* (tissue depletion) and *Prakriti Vikriti* (constitutional imbalance). Ayurveda views these conditions as signs of a deeper imbalance in the *Prakriti* (individual constitution) and *Vikriti* (present state of health) [9, 10, 11].

Case Report

A 68-year-old male patient with history of end stage Chronic Kidney Disease (CKD) co-existing with Type II Diabetes Mellitus (T2DM) and Hypertension (HTN) visited Jeena Sikho Lifecare Limited Hospital, Derabassi on 12th of November, 2024. The patient was on insulin for T_2DM since 15 years. He was diagnosed with hypertension for the past 1 year. He was on allopathic medications such as Cilnidipine, Bisoprolol, Torasemide, Linagliptin, Ketoanalogues and essential oils. He presented symptoms like Dyspnea on exertion, weakness and fatigue, pedal oedema, facial puffiness, vomiting and heaviness of abdomen. He was admitted for 9 days and was discharged on 20th of November, 2024. Vitals and *Ashtasthana Pareeksha* on the day of patient visit is shown in table 1. His initial assessment on the day of visit was taken and tabulated in table 2. The vitals taken during the IPD treatment is shown in table 3. Similarly, laboratory investigations observed during the treatment is shown in table 4 and the ECG reports are tabulated in table 5. During the treatment period, the patient received a combination of *Ayurvedic* treatments which covered a tailored therapeutic diet, lifestyle recommendations and *Panchakarma* treatments like *Awagah Sweden*, *Punarnava and Gokshuru Sidh Sneh Basti, Punarnava and Gokshuru Sidh Kashaya Basti, Shirodhara* with *Brahmi* oil, *Vrikka Basti* with *Punarnava* oil, *Abhyanga* with *Bala* oil followed by *Sarwang Sweden.*

Table 1: Vitals and *Ashtasthana Pareeksha* observed on the day of patient visit

Parameter	Values
Blood Pressure	184/90 mm Hg
Pulse Rate	*58/min*
Height	*173 cm*
Weight	*87 Kg*
BMI	*29.1*
RBS	*131 mg/dl*

Parameter	Values
Nadi	*Vataj Pittaj*
Mala	*Vibandh*
Mutra	*Phenila*
Jiwha	*Malin*
Shabda	*Spasht*
Sparsha	*Lipt*
Akruti	*Samanya*
Drika	*Samanya*

Table 2: Initial assessment on the day of visit

Parameters	Evaluation
Appetite	*Decreased*
Bowel	*Constipated*
Urine	*Frothy Urination*
Sleep	*Disturbed*
Water Intake	*Approx. 1-5 L*
Urine Output	*Approx. 1 L*

Ayurvedic medications taken during the course of treatment is shown in table 6. Daily medication schedule is tabulated in table 7. On the day of his first visit, he gave a detailed medical history along with his then updated laboratory reports, which is tabulated and showed in table 8.

He was asked to visit the hospital again for a follow-up. As

said, he visited again on 14th of December, 2024 with all his laboratory reports taken after the previous discharge. The laboratory investigations are tabulated and showed in table 9. The vitals taken on the day of follow-up is shown in table 10. He was prescribed medications after the follow-up which is mentioned in table 11.

Table 3: Vitals taken during IPD treatment

Date	Time	Weight (Kg)	Temperature (°F)	Blood Pressure (mm Hg)	Pulse (per min)	Respiration (per min)	Sugar (mg/dl)	SPO2 (%)
12-11-2024	8:00 PM	87 Kg	97.8 °F	130/80 mm Hg	72/min	18/min		98%
13-11-2024	5:15 AM			130/86 mm Hg	70/min	18/min		98%
	9:30 AM		98.2 °F	170/100 mm Hg	74/min	18/min		98%
	7:40 PM	86 Kg	97.8 °F	160/90 mm Hg	68/min	20/min		99%
14-11-2024	5:40 AM		98.2 °F	150/80 mm Hg	72/min	18/min		98%
	9:00 AM		98 °F	160/90 mm Hg	60/min	16/min		98%
	7:47 PM		97.8 °F	150/90 mm Hg	70/min	20/min		99%
15-11-2024	5:40 AM		98.2 °F	140/80 mm Hg	78/min	18/min		98%
	10:00 AM		98.4 °F	120/80 mm Hg	68/min	18/min		97%
	7:50 PM	86 Kg	97.8 °F	130/80 mm Hg	70/min	20/min		99%
16-11-2024	5:30 AM		98.2 °F	150/90 mm Hg	79/min	18/min		98%
	10:00 AM		97.8 °F	130/80 mm Hg	72/min	20/min		99%
	7:50 PM		98.7 °F	140/80 mm Hg	76/min	20/min	R- 163 mg/dl	99%
17-11-2024	5:20 AM		98.2 °F	140/80 mm Hg	78/min	18/min	R-123 mg/dl	99%
	9:10 AM	85.5 Kg	97.4 °F	130/80 mm Hg	68/min	20/min		99%
	8:10 PM		98.2 °F	140/90 mm Hg	92/min	20/min	R-180 mg/dl	99%
18-11-2024	5:20 AM		98.2 °F	140/80 mm Hg	90/min	18/min	F-96 mg/dl	99%
	9:26 AM		97.8 °F	130/90 mm Hg	58/min	20/min		99%
	11:30 AM			150/90 mm Hg			175 mg/dl	
	8:30 PM	85 Kg	98.2 °F	140/90 mm Hg	62/min	20/min	R-140 mg/dl	99%
19-11-2024	5:20 AM		98.2 °F	130/80 mm Hg	68/min	18/min	R-104 mg/dl	98%
	10:00 AM	86.4 Kg	98.2 °F	180/100 mm Hg	68/min	18/min		98%
	9:00 PM		97.8 °F	150/90 mm Hg	68/min	20/min	R-140 mg/dl	99%
20-11-2024	5:20 AM		98.2 °F	140/90 mm Hg	70/min	18/min	F-92 mg/dl	98%
	10:00 AM		98.4 °F	140/90 mm Hg	76/min	18/min		98%

Table 4: Laboratory investigations during IPD treatment

Tests	Values			
	13-11-2024	17-11-2024	18-11-2024	19-11-2024
Hemoglobin	8.6 g/dL	9 g/dL	-	-
Total RBC count	3.05 mil/cumm	3.19 mil/cumm	-	-
PCV/HCT	25.80%	27.10%	-	-
Blood Urea	161.68 mg/dl	150.2 mg/dl	-	-
Serum Creatine	10.96 mg/dL	9.54 mg/dL	-	-
Serum Uric acid	-	8.24 mg/dL	-	-
Total Protein	5.37 g/dL	-	-	-
Albumin	2.66 g/dL	-	-	-
Calcium	7.8 mg/dl	-	-	-
E-Gfr	5 mil/cumm	-	-	-
Urine Protein	Present (++)	-	-	-
Urine Glucose	Present (+)	-	-	-
Electrolyte: Potassium		6.23 mEq/L	6.32 mEq/L	5.7 mEq/L

Table 5: ECG reports during IPD treatment

Date	Interpretation
14-11-2024	Sinus Bradycardia, first degree atrioventricular block, second degree atrioventricular block (*wenekebach* type)
18-11-2024	Sinus Rhythm, Low T Wave (V4)

Table 6: Medicines taken throughout the treatment.

Medicines	Ingredients	Therapeutic effects
GFR Powder	Varun (*Crateva nurvala*), Punarnava (*Boerhavia diffusa*), Gokshur (*Tribulus terrestris*), Kaasni (*Cichorium intybus*), Bhumi Amla (*Phyllanthus niruri*), Shirish (*Albizia lebbeck*), Shigru (*Moringa oleifera*), and Apamarg (*Achyranthes aspera*)	Supports kidney function and reduces inflammation, helping with renal symptoms.
Nephron plus	Hazrool yahood (*Lapis judaicus*) bhasma, Chandraprabha powder, and Pashanbheda (*Bergenia ligulata*)	Beneficial to kidney diseases and urinary problems
Chander Vati Tablet	Kapoor Kachri (*Hedychium spicatum*), Vacha (*Acorus calamus*), Motha (*Cyperus rotundus*), Kalmegh (*Andrographis paniculata*), Giloy (*Tinospora cordifolia*), Devdaru (*Cedrus deodara*), Desi Haldi (*Curcumalonga*), Atees (*Aconitum heterophyllum*), Daru Haldi (*Berberis aristata*), Pipla Mool (*Piper longum* root), Chitraka (*Plumbago zeylanica*), Dhaniya (*Coriandrum sativum*), Harad (*Terminalia chebula*), Bahera (*Terminalia bellirica*), Amla (*Phyllanthus emblica*), Chavya (*Piper chaba*), Vayavidang (*Embelia ribes*), Pippal (*Piper longum*), Kalimirch (*Piper nigrum*), Sonth (*Zingiber officinale* dried ginger), Gaj Pipal (*Scindapsus officinalis*), Swarn Makshik Bhasma (Gold iron pyrite ash - Ayurvedic preparation), Sujji Kshar (Potassium carbonate - traditional alkali preparation), Senda Namak (Rock salt), Kala Namak (Black salt), Choti Llayachi (*Elettaria cardamomum* - small cardamom), Dalchini (*Cinnamomum verum*), Tejpatra (*Cinnamomum tamala*), Danti (*Baliospermum montanum*), Nishothra (*Operculina turpethum*), Banslochan (Bamboo silica), Loh Bhasam (Iron ash - Ayurvedic preparation), Shilajit (*Asphaltum punjabinum*), Guggal (*Commiphora wightii*).	Alleviates urinary tract symptoms and promotes healthy urine flow.
Divya Shakti Powder	Trikatu, Triphala, Nagarmotha (*Cyperus rotundus*), Vay Vidang (*Embelia ribes*), Chhoti Elaichi (*Elettaria cardamomum*), Tej Patta (*Cinnamomum tamala*), Laung (*Syzygium aromaticum*), Nishoth (*Operculina turpethum*), Sendha Namak, Dhaniya (*Coriandrum sativum*), Pipla Mool (*Piper longum* root), Jeera (*Cuminum cyminum*), Nagkesar (*Mesua ferrea*), Amarvati (*Achyranthes aspera*), Anardana (*Punica granatum*), Badi Elaichi (*Amomum subulatum*), Hing (*Ferula assafoetida*), Kachnar (*Bauhinia variegata*), Ajmod (*Trachyspermum ammi*), Sazzikhar, Pushkarmool (*Inula racemosa*), Mishri (*Saccharum officinarum*).	Enhances overall vitality and energy levels, addressing fatigue and weakness.
Dr. Sukoon	Apamarga/Chirchida (*Achyranthes aspera*) panchang, Shatawar (*Asparagus racemosus*) root, Aswagandha (*Withania somnifera*), Brahmi (*Bacopa monnieri*) leaf, Vacha (*Acorus calamus*) leaf, Shankh-pushpi (*Convolvulus pluricaulis*) plant, Calcium.	Manage Stress, Improves Better Sleep, Maintains Emotional Balance, Improves Restful Sleep
Mutra Vardhak Vati	Gokshura (*Tribulus terrestris*), Guggul (*Commiphora wightii*), Sonth (*Zingiber officinale*), Kalimirch (*Piper nigrum*), Pippal (*Piper longum*), Bahera (*Terminalia bellerica*), Harad (*Terminalia chebula*), Amla (*Phyllanthus emblica*), Motha (*Cyperus rotundus*).	Used for treating kidney stones, dysuria, painful micturition, high blood pressure, and inflammatory conditions, while also providing relief in osteoarthritis (O.A.), hyperuricemia, and exhibiting antithesis properties.
CKD Tablet	Pashanbhed – (*Bergenia ciliata*), Varun – (*Crataeva nurvala*), Punarnava – (*Boerhavia diffusa*), Gokhru – (*Tribulus terrestris*), Apamarg – (*Achyranthes aspera*), Haldi – (*Curcura longa*), Charila – (*Embelia ribes*), Kulthi – (*Dolichos biflorus*), Harad – (*Terminalia chebula*), Bhumiawla – (*Pyrrosia piloselloides*), Giloy – (*Tinospora cordifolia*), Shitalchini – (*Vernonia cinerea*), Anantmool – (*Hemidesmus indicus*), Khas – (*Vetiveria zizanoides*), Yab Kshar – (Alkaline substance, botanical origin unclear), Muli Kshar – (*Raphanus sativus*), Kalmi Shora – (Sodium bicarbonate), Sajji Kshar – (Traditional alkaline substance, botanical origin unclear), Shilajit – (*Asphaltum*), Hajral Yahud – (*Silicon dioxide*), Shwet Parpati – (Mercury-based preparation in Ayurvedic medicine).	Used for treating kidney disease, urinary tract infections (UTI), burning micturition, and supporting liver health.
Vrikcare Tonic	Chandan White (*Santalum album*), Aamchaal (*Mangifera indica*), Suhandbla (*Vetiveria zizanioides*), Kachoor (*Curcuma zedoaria*), Nagarmotha (*Cyperus rotundus*), Pitpapra (*Fumaria indica*), Gambhari (*Gmelina arborea*), Mulethi (*Glycyrrhiza glabra*), Nilofer (*Nymphaea alba* or *Nymphaea nouchali*), Rasna (*Pluchea lanceolata*), Punarnava (*Boerhavia diffusa*), Priyangu (*Callicarpa macrophylla*), Majeeth (*Rubia cordifolia*), Lal Chandan (*Pterocarpus santalinus*), Patha (*Cyclea peltata* or *Cissampelos pareira*), Chiraita (*Swertia chirayita*), Bad Chaal (*Terminalia arjuna*), Gokhuru (*Tribulus terrestris*), Peepal Chaal (*Ficus religiosa*), Kachnar Chaal (*Bauhinia variegata*), Mahua (*Madhuca longifolia*), Madhu (*Apis species* - Honey), Shaker (*Saccharum officinarum* - Sugar).	Improves Kidney health and helps in detoxification
Dr. BP Care	Shankh-Pushpi (*Convolvulus pluricaulis*), Shatavari (*Asparagus racemosus*), Ashwagandha (*Withania somnifera*), Brahmi (*Bacopa monnieri*), Vacha (*Acorus calamus Linn*), Sarpagandha (*Rauvolfia serpentina*), Jeera (*Cuminum cyminum*), Giloy (*Tinosporacordifolia*), Malabar nut (*Adhatoda vasica*), Jatamansi (*Nardostachys jatamansi*), and Muktha Pishti (*Pearl powder*)	Maintains Balanced Blood Flow thus healthifies the heart.

Table 7: Daily medication Schedule

Date	Medicines	Dosage
12-11-2024	GFR Powder	1 teaspoon BD *(Adhobhakta with koshna jala)*
	Nephron Plus	1 TAB BD *(Adhobhakta with Koshna jala)*
	Chander Vati	2 TAB BD *(Adhobhakta with Koshna jala)*
	Divya Shakthi Powder	Half teaspoon HS *(Adhobhakta with koshna jala)*
13-11-2024	GFR Powder	2 teaspoon BD *(Adhobhakta with koshna jala)*
	Nephron Plus	3 TAB BD *(Adhobhakta with Koshna jala)*
	Chander Vati	4 TAB BD *(Adhobhakta with Koshna jala)*
	Divya Shakthi Powder	Half teaspoon HS *(Adhobhakta with koshna jala)*
	Dr. Sukoon	1 TAB BD *(Adhobhakta with Koshna jala)*
	Muthravardhak	2 TAB BD *(Adhobhakta with koshna jala)*
14-11-2024	GFR Powder	3 teaspoon BD *(Adhobhakta with koshna jala)*
	Nephron Plus	5 TAB BD *(Adhobhakta with Koshna jala)*
	Chander Vati	6 TAB BD *(Adhobhakta with Koshna jala)*
	Divya Shakthi Powder	Half teaspoon HS *(Adhobhakta with koshna jala)*
	Dr. Sukoon	3 TAB BD *(Adhobhakta with Koshna jala)*
	Muthravardhak	4 TAB BD *(Adhobhakta with koshna jala)*
15-11-2024	GFR Powder	4 teaspoon BD *(Adhobhakta with koshna jala)*
	Nephron Plus	7 TAB BD *(Adhobhakta with Koshna jala)*
	Chander Vati	8 TAB BD *(Adhobhakta with Koshna jala)*
	Divya Shakthi Powder	Half teaspoon HS *(Adhobhakta with koshna jala)*
	Dr. Sukoon	5 TAB BD *(Adhobhakta with Koshna jala)*
	Muthravardhak	6 TAB BD *(Adhobhakta with koshna jala)*
16-11-2024	GFR Powder	5 teaspoon BD *(Adhobhakta with koshna jala)*
	Nephron Plus	9 TAB BD *(Adhobhakta with Koshna jala)*
	Chander Vati	10 TAB BD *(Adhobhakta with Koshna jala)*
	Divya Shakthi Powder	Half teaspoon HS *(Adhobhakta with koshna jala)*
	Dr. Sukoon	7 TAB BD *(Adhobhakta with Koshna jala)*
	Muthravardhak	8 TAB BD *(Adhobhakta with koshna jala)*
17-11-2024	GFR Powder	6 teaspoon BD *(Adhobhakta with koshna jala)*
	Nephron Plus	11 TAB BD *(Adhobhakta with Koshna jala)*
	Chander Vati	12 TAB BD *(Adhobhakta with Koshna jala)*
	Divya Shakthi Powder	Half teaspoon HS *(Adhobhakta with koshna jala)*
	Dr. Sukoon	9 TAB BD *(Adhobhakta with Koshna jala)*
	Muthravardhak	10 TAB BD *(Adhobhakta with koshna jala)*
18-11-2024	GFR Powder	7 teaspoon BD *(Adhobhakta with koshna jala)*
	Nephron Plus	13 TAB BD *(Adhobhakta with Koshna jala)*
	Chander Vati	14 TAB BD *(Adhobhakta with Koshna jala)*
	Divya Shakthi Powder	Half teaspoon HS *(Adhobhakta with koshna jala)*
	Dr. Sukoon	11 TAB BD *(Adhobhakta with Koshna jala)*
	Muthravardhak	12 TAB BD *(Adhobhakta with koshna jala)*
19-11-2024	GFR Powder	8 teaspoon BD *(Adhobhakta with koshna jala)*
	Nephron Plus	15 TAB BD *(Adhobhakta with Koshna jala)*
	Chander Vati	16 TAB BD *(Adhobhakta with Koshna jala)*
	Divya Shakthi Powder	Half teaspoon HS *(Adhobhakta with koshna jala)*
	Dr. Sukoon	13 TAB BD *(Adhobhakta with Koshna jala)*
	Muthravardhak	14 TAB BD *(Adhobhakta with koshna jala)*
20-11-2024	GFR Powder	9 teaspoon BD *(Adhobhakta with koshna jala)*
	Nephron Plus	17 TAB BD *(Adhobhakta with Koshna jala)*
	Chander Vati	18 TAB BD *(Adhobhakta with Koshna jala)*
	Divya Shakthi Powder	Half teaspoon HS *(Adhobhakta with koshna jala)*
	Dr. Sukoon	15 TAB BD *(Adhobhakta with Koshna jala)*
	Muthravardhak	16 TAB BD *(Adhobhakta with koshna jala)*

Table 8: Previous laboratory investigations

Tests	Values
Blood Urea	155 mg/dl
Serum Creatine	*10 mg/dl*
Blood Urea Nitrogen	725 mg/dl
E- Gfr	*5 mL/min*
Albumin	3.5 g/dl
Potassium	5.7 mEq/L

Table 9: Follow-up laboratory investigations

Parameter	Values
Blood Pressure	140/90 mm Hg
Pulse Rate	70/min
Height	173 cm
Weight	83 Kg
SPO2	99%

Table 10: The vitals taken on the day of follow-up

Tests	Values
	03-12-2024
Blood Urea	111 mg%
Serum Creatine	8.20%

Table 11: Medications prescribed after follow-up

Medicines	Dosage
CKD Tablet	3 tablets TDS (*Adhobhakta with koshna jala*)
Vrikka care Tonic	2 ml BD (*Samamatra koshna jala*)
Chander Vati	2 Tablets BD (*Adhobhakta with koshna jala*)
Dr.BP	2 Tablets BD (*Adhobhakta with koshna jala*)
Muthravardhak	2 Tablets BD (*Adhobhakta with koshna jala*)

Treatment Plan

I. Diet

A therapeutic diet, particularly through the implementation of renal diet is a vital therapeutic strategy in decelerating CKD progression. A perfectly tailored DIP diet was administered.

1. Avoid

- Avoid wheat, milk and milk products, hot and alcoholic beverages, packed and refined food, sodium
- Avoid eating after 8 pm

2. Hydration

- To ensure adequate water intake take slow sips at uniform time intervals
- Drink 1 litre of alkaline water for 3-4 times a day
- At proper intervals drink herbal tea, living water, turmeric water
- Consume only boiled water

3. Millet Ingest

- Foxtail (*Setaria italica*), Barnyard (*Echinochloa esculenta*), Little (*Panicum sumatrense*), Kodo (*Paspalum scrobiculatum*) and and Browntop (*Urochloa ramose*) are the five millets that has to be included in the diet.
- Cook millets in a steel cookware using only mustard oil.

4. Meal Structure

- **Early morning:** Herbal tea containing curry leaves, raw ginger and turmeric.
- **Breakfast:** Steamed seasonal fruits and sprouts, Fermented millet shake
- **Morning snacks:** Steamed sprouts and carrot juice.
- **Lunch:** Lunch will include 2 plates- plate 1 and plate 2. Plate 1 will include steamed salad and plate 2 will include standard millet meal. Fruits and vegetables in salad should be 10 times the patient's weight.
- **Evening snacks:** Healthy green juice plus dry fruits
- **Dinner:** Dinner will also consist 2 plates. Plate 1 include salad with seasonal vegetables, chutney and soup. Plate 2 include fermented millet meal, millet khichdi or millet *chapaati*.

5. Special Notes

- Fasting a day is recommended. Intermittent fasting is also appreciated.
- A slow walk after dinner is recommended.
- Practice *Vajrasana* (*Yogasana* posture) as this posture can help with digestion by improving blood flow to the stomach and intestines thus preventing constipation and bloating.

II. Lifestyle Recommendations

i). Practice daily medications and *Yoga*
ii). Do 30 minute barefoot brisk walk daily
iii). Sleep for 6-8 hours daily.
iv). Follow a therapeutically tailored dip diet.

III. *Panchakarma* Therapies

1. *Awagah Swedan* (30 mins)

Procedure

- The patient is made to sit in up to chest in deep warm water medicated with selected herbal medicines.
- Maintain the water temperature at 42°C thus promoting sweating.
- The procedure is recommended to follow for 30 minutes.

Physiology and Mode of Action

- *Awagah Swedan* is a therapeutic treatment in Ayurveda that involves steam therapy for detoxification and rejuvenation. It is typically used in combination with other treatments to relieve stiffness, improve circulation, and support the body's natural healing processes.
- *Awagah Swedan* specifically targets the *Vata dosha*, which is responsible for dryness, rigidity, and imbalances related to the nervous system and joints. Steam therapy helps to pacify the dry and rough qualities of *Vata*, and it promotes relaxation and nourishment to the tissues.
- Relaxation of Muscles and Joints: The steam increases blood flow, relaxing tight muscles and easing joint stiffness, beneficial for conditions like arthritis and muscular pain.
- Detoxification: Steam promotes sweating, helping expel toxins (*ama*) from the body and supporting internal cleansing.
- Opening of Channels: The steam opens the body's channels (*srotas*), enhancing the flow of *prana*, blood, and lymph, aiding nutrient transportation and waste removal.
- Balancing *Doshas*: Primarily balances the *Vata dosha* by

alleviating dryness and improving body harmony, while also balancing excess heat or cold from other *doshas.*

- Improvement in Circulation and Metabolism: Boosts circulation and metabolism, aiding nutrient delivery, digestion, and healing.
- Psychological Benefits: Calms the mind and reduces stress and anxiety, offering emotional relief.

2. *Punarnava and Gokshuru Sidh Sneh Basti* (90 ml)

Procedure

Preparation:

- The patient is asked to lie down in a comfortable position, usually in the left lateral position (lying on the left side), to facilitate the smooth introduction of the medicated oil.
- A medicated oil or ghee infused with *Punarnava* and *Gokshura* is prepared.

Administration of *Sneh Basti*:

- The medicated oil or ghee is warmed and introduced into the rectum using a sterile, soft enema nozzle.
- The patient holds the medicated oil within the body for a prescribed time, in this case 90 ml, depending on the treatment plan.
- During this time, the oil penetrates deeply, lubricating the tissues and helping to dissolve accumulated toxins (*ama*) and balance the *doshas*.

Post-Treatment:

- After the treatment, the patient is advised to rest for some time to allow the body to fully absorb the benefits.
- The patient may undergo *Shirodhara* or *Abhyanga* (oil massage) as complementary treatments to further support detoxification and rejuvenation.

Physiology and Mode of Action

- The primary *dosha* targeted in *Sneh Basti* is *Vata*, which governs movement, dryness, and the nervous system. In conditions where *Vata* is aggravated, such as joint pain, inflammation, and weakness, *Sneh Basti* helps restore balance.
- *Sneh Basti* lubricates the tissues and promotes the smooth flow of bodily fluids (including lymph, blood, and *prana*), which is essential for reducing *Vata's* drying and rough qualities.
- *Punarnava* is well known for its diuretic properties, which help in the detoxification of the kidneys and improve urinary function. It is beneficial for reducing oedema and promoting fluid balance within the body.
- *Gokshura* supports the urinary system by improving the tone of the urinary bladder and kidneys, promoting detoxification, and enhancing renal function. It also has diuretic and anti-inflammatory effects, supporting the natural expulsion of toxins.
- According to Ayurveda, *ama* (toxins) accumulates due to poor digestion, stress, and imbalanced *doshas. Sneh Basti* helps in the deep cleansing of toxins from the tissues, especially by pacifying *Vata* and stimulating the digestive fire (*Agni*). The oil used in the enema helps dissolve and remove these toxins, especially from the large intestines [1, 3].

3. *Punarnava and Gokshuru Sidh Kashaya Basti* (380 ml)

Preparation of Herbal Decoction (Kashaya):

- A medicinal decoction is prepared using *Punarnava* and *Gokshura*.
- These plants are boiled in water to extract their active medicinal properties.

Administration of Kashaya Basti:

- The patient is asked to lie down in a left lateral position (on the left side), which facilitates the smooth administration of the enema.
- The prepared *ayurvedic* decoction (*Punarnava* and *Gokshura*) is warmed to a comfortable temperature and then introduced into the rectum using a sterile nozzle or enema tube.
- The patient is instructed to hold the decoction inside the body for a prescribed amount of time (typically 15-30 minutes) to allow the medicinal properties to penetrate the tissues.

Post-Treatment

- After the procedure, the patient is advised to rest for a while to allow the body to absorb the benefits of the treatment.
- Additional therapies, such as *Abhyanga* (oil massage) or *Shirodhara*, may be performed to complement the effects of the *Kashaya Basti* and further enhance relaxation and rejuvenation.

4. *Shirodhara* with *Brahmi* oil (800 ml)

Procedure

Preparation:

- Ensure the patient lies down comfortably on their back on a massage table.
- Warm the *Brahmi* oil until it is slightly warmer than body temperature.

***Abhyanga* Massage:**

- Begin with an *Abhyanga* massage, which involves gently massaging the entire body with warm *Brahmi* oil.
- This helps to relax the muscles and open up the energy channels.

Setting Up

- Place a boundary on the patient's forehead to prevent the oil from entering their eyes and ears.
- Position the patient's head over a pot or container filled with warm *Brahmi* oil.

Pouring the Oil

- Pour the warm *Brahmi* oil gently and continuously over the patient's forehead, specifically targeting the "third eye" area (between the eyebrows).
- The oil should be poured from a height of about four finger lengths above the forehead.
- The duration of the oil pour can vary depending on the patient's condition: typically, 30-60 minutes.

Head Massage:

- While pouring the oil, give a gentle head massage to the patient, focusing on the scalp and the area where the nerves end.
- This helps to enhance relaxation and improve the flow of energy.

Completion

- After the oil pour, remove as much oil as possible from the patient's hair and head.
- Wrap the patient's head with a cloth bonnet or shawl to keep any excess oil from dripping and to protect the head for the rest of the day

Physiology and Mode of Action

- **Relaxation Response:** *Brahmi* oil, poured continuously over the forehead, stimulates the "third eye" region (*Ajna chakra*), inducing a deep sense of calm and relaxation.
- **Parasympathetic Activation:** The gentle, rhythmic flow of oil activates the parasympathetic nervous system, promoting relaxation, reducing stress, and enhancing mental clarity.
- **Cortisol Reduction:** *Shirodhara* helps in lowering cortisol levels (stress hormone), resulting in reduced anxiety and stress.
- **Melatonin Enhancement:** It can also enhance melatonin production, improving sleep quality and regulating the sleep-wake cycle.
- **Microcirculation Boost:** The warm *Brahmi* oil improves blood circulation to the scalp and head, enhancing oxygen and nutrient supply to brain tissues.
- **Detoxification:** Enhanced circulation aids in the removal of toxins (*Ama*) from the body, promoting overall health and vitality [1, 3].

1. *Vrikka Basti* with *Punarnava* Oil

Procedure:

Preparation of *Punarnava* Oil:

- *Punarnava* oil is prepared by infusing *Punarnava* in a base oil (usually sesame oil or another suitable carrier oil).
- This oil is known for its detoxifying, anti-inflammatory, and diuretic effects, particularly beneficial for the kidneys and urinary system.
- The oil should be warmed to a comfortable temperature before being administered.

Patient Positioning

- The patient is positioned in the left lateral position (lying on the left side) with knees drawn towards the chest.
- This position is ideal for the administration of enema therapy.

Administration of Punarnava Oil

- The warmed *Punarnava* oil is carefully administered into the rectum using a sterile, soft enema nozzle or tube.
- The amount of oil to be used is determined by the patient's condition, typically around 100-200 ml.
- The patient is instructed to retain the oil for a specific time, usually 20-30 minutes, to allow the oil to be absorbed and to act on the tissues.
- The oil works by penetrating deep into the tissues and promoting the expulsion of toxins (*ama*), reducing inflammation, and enhancing the overall kidney function.

Post-Treatment Care

- After the procedure, the patient is allowed to rest for some time to absorb the full benefits of the treatment.
- The patient may be given herbal tonics or water to further flush out toxins and support kidney function.
- In some cases, additional treatments like *Abhyanga* (oil massage) or *Shirodhara* (oil poured on the forehead) may be recommended to help relax the body and further assist in the detoxification process.

Physiology and Mode of Action

- The kidneys regulate fluid balance and detoxify the body. *Punarnava* helps balance *Vata* (which governs dryness) by promoting fluid retention and reducing kidney imbalances like dehydration and oedema.
- As a diuretic, *Punarnava* helps the kidneys expel excess fluid and waste, reducing inflammation and promoting kidney health. Its oil form enhances absorption, acting directly on affected tissues.

2. *Abhyanga* with *Bala* oil followed by *Sarwang Sweden*

Preparation of *Bala* Oil:

- *Bala* Oil is a medicated oil infused with ***Bala*** (*Sida cordifolia*), a medicinal plant known for its muscle-strengthening and rejuvenating properties.
- The oil is prepared by infusing *Bala* in a suitable base oil, typically sesame or coconut oil, and is warmed before use.

***Abhyanga* (Oil Massage):**

- The patient lies down in a comfortable position. *Bala* oil is applied generously to the entire body. The therapist performs long, smooth strokes to spread the oil and stimulate circulation.
- The massage is typically done in the direction of the hair (upward strokes for limbs and downward strokes for the torso) to improve blood flow, ease muscle tension, and relieve stiffness.
- The massage is performed for about 30-45 minutes, allowing the oil to deeply penetrate the skin and tissues, nourishing and strengthening the muscles and joints.

Post-*Abhyanga*: *Sarwang Swedana* (Full Body Sweat Therapy):

- After the *Abhyanga* massage, the patient is taken for *Sarwang Swedana*, a full-body steam therapy. This is done to open the pores, enhance the absorption of the oil into the tissues, and promote sweating to release toxins.
- The patient sits inside a steam chamber or is covered with a steam blanket, ensuring that the entire body is exposed to steam. The heat helps to further relax the muscles and induce detoxification through sweat.
- The steam session lasts for about 15-30 minutes, depending on the individual's condition and tolerance.

Post-Treatment Care

- After the steam therapy, the patient is allowed to rest, as the body relaxes and the benefits of the oil and sweat therapy begin to take effect.
- The patient may be advised to drink herbal teas or warm water to support further detoxification.
- Resting and avoiding cold or strenuous activities are recommended immediately after the therapy to ensure maximum benefit.

IV. Medicinal Interventions

The medicinal interventions included in this case were GFR Powder, Nephron plus, Chander Vati Tablet, Divya Shakti Powder, Dr. Sukoon, Mutra Vardhak Vati, CKD Tablet, Vrikcare Tonic and Dr. BP Care. Medications prescribed

during the IPD treatment and at the time of discharge and in the follow-up are shown in table 5.

Result

Effectives of the Treatment

After 9 days of treatment the patient has shown significant improvement in symptoms. This proves that the combination of treatments used in this case is very effective in CKD coexisting with Type II Diabetes Mellitus and hypertension patients. The patient got relief from symptoms like like Dyspnea on exertion, weakness and fatigue, pedal oedema, facial puffiness, vomiting and heaviness of abdomen. The pain score before and after the therapy is shown in table 12.

Table 12: Comparison showing pain score before and after the therapy

Before			After		
Date	**Time**	**Pain Score**	**Date**	**Time**	**Pain Score**
13-11-2024	9:30 AM	0/10	12-11-2024	8:00 PM	0/10
14-11-2024	9:00 AM	1/10	13-11-2024	7:40 PM	0/10
15-11-2024	9:40 AM	0/10	14-11-2024	7:40 PM	0/10
16-11-2024	10:00 AM	1/10	15-11-2024	7:50 PM	0/10
17-11-2024	9:50 AM	1/10	16-11-2024	7:50 PM	0/10
18-11-2024	9:30 AM	1/10	17-11-2024	8:10 PM	0/10
19-11-2024	9:40 AM	0/10	18-11-2024	8:30 PM	0/10
20-11-2024	10:00 AM	0/10	19-11-2024	9:00 PM	0/10

A psychological status assessment was conducted during the IPD treatment. The results are shown in table 13.

Table 13: Results of Psychological assessment recorded during IPD treatment.

Condition	Assessment	Score
Calm	Very rarely get into argument/fight	3
Agitated	Very rarely get *imitated*/angry	2
Anxious	Get *tension*/*fear* in *mild*/*minimum*	2
Depressed	Loss of activity and respond to the situation *only if forced*	3
Sleep Disorder	4 to 6 hours sleep with disturbance	2

Future Research Aspects

A promising future research aspect of *Ayurvedic* treatment for Chronic Kidney Disease (CKD) could focus on understanding the molecular mechanisms behind the efficacy of *Ayurvedic* medicines and formulations in kidney health. While traditional *Ayurvedic* practices have used medicinal plants such as *Punarnava*, *Gokshura*, *Bhringaraj*, and *Ashwagandha* for kidney support, there is limited scientific data on how these substances interact with the body's biochemical pathways in CKD.

Future studies could include:

i). **Pharmacokinetic and pharmacodynamic investigations:** This would involve studying the absorption, distribution, metabolism, and excretion of *Ayurvedic* medicines used in CKD treatment. Understanding how these medicines are processed by the body could help optimize their use in modern clinical settings [6, 8].

ii). **Clinical trials:** Well-structured randomized controlled trials (RCTs) to assess the safety and efficacy of *Ayurvedic* treatments in CKD patients, particularly in stages 3-5, would help provide solid evidence of their benefits compared to conventional treatments.

iii). **Biomarker discovery and validation:** Research could focus on identifying biomarkers that could indicate the effectiveness of *Ayurvedic* treatments, allowing for better monitoring of disease progression and therapeutic response in CKD patients.

iv). **Combination therapies:** Investigating the potential synergistic effects of *Ayurvedic* treatments combined with modern pharmaceutical interventions could pave the way for more holistic, integrated treatment approaches for CKD management.

v). **Gut microbiome studies:** Ayurveda emphasizes digestion and metabolic balance. Future research could explore how *Ayurvedic* treatments influence the gut microbiome and how this might contribute to kidney health, as an imbalance in the microbiome is increasingly linked to CKD progression.

These studies could help integrate traditional *Ayurvedic* practices with contemporary medicine, providing a more comprehensive approach to CKD treatment coexisting with Type II Diabetes Mellitus and hypertension [12].

Discussion

In this case study, a 68 years old male patient with history of end stage CKD coexisting with Type II Diabetes Mellitus and hypertension was admitted for 9 days at Jeena Sikho Lifecare Ltd Hospital, Derabassi to undergo a combination of *ayurvedic* treatments. The patient presented severe symptoms like Dyspnea on exertion, weakness and fatigue, pedal oedema, facial puffiness, vomiting and heaviness of abdomen. The extensive treatment included maintaining a perfectly tailored DIP diet, making serious lifestyle recommendations and *Panchakarma* therapies. During the IPD treatment, regular vitals, *Asthasthana Pareeksha*, daily pain score and psychological status of the patient was taken without fail. *Samprapti* of this case is shown in figure 1. *Panchakarma* therapies like Awagah Swedan*, Punarnava and Gokshuru Sidh Sneh Basti, Punarnava* and *Gokshuru Sidh Kashaya Basti, Shirodhara* with *Brahmi* oil, *Vrikka Basti* with *Punarnava* Oil and *Abhyanga* with *Bala* oil followed by *Sarwang Sweden* were administered on the patient. In *Awagah Sweden,* the patient is made to sit in neck or navel deep warm water medicated with selected herbal medicines for 30 minutes. Thus sweating is encouraged which eventually promotes vasodilation. This eliminates metabolic wastes and toxins from the body. In *Punarnava and Gokshuru Sidh Sneh Basti* and *Punarnava* and *Gokshuru Sidh Kashaya Basti* the patient was positioned in the left lateral recumbent posture and the prepared *Gokshuru* and *Punarnava*-infused *tail* or *kashaya* was gently introduced into the rectum via a sterile *Basti* tube, under controlled pressure. The diuretic properties of *Gokshura* and *Punarnava* help in increasing urine output, which aids in the removal of toxins and waste products from the body. This helps in rejuvenating the cells in the *Pakvashaya* (lower abdomen), where urine formation occurs. This treatment helps in improving renal function and overall health. In *Shirodhara* with Brahmi oil, the therapist gently pours warm *Brahmi*-infused oil over the forehead in a continuous stream. This process aims to promote relaxation, reduce stress, and enhance mental clarity. During IPD treatment, the patient was given medications like GFR Powder, Nephron plus, Chander Vati Tablet, Divya Shakti Powder, Dr. Sukoon and Mutra Vardhak Vati. After the follow-up, the patient was given CKD Tablet, Vrikcare Tonic,

Chander Vati Tablet, Mutra Vardhak Vati and Dr. BP Care. GFR Powder, Nephron plus, Chander Vati Tablet, Mutra Vardhak Vati, CKD Tablet and Vrikcare Tonic are prescribed to support kidney function and reduces inflammation, helping with renal symptoms. These medications are also used for treating kidney stones, dysuria, painful micturition, high blood pressure, and inflammatory conditions, while also providing relief in osteoarthritis (O.A.), hyperuricemia, and exhibiting antithesis properties. Divya Shakti powder enhances overall vitality and energy levels, addressing fatigue and weakness. Sukoon Tablets are used to manage stress levels and help to maintain a relaxed state of mind thus helping with quality sleep. Whereas Dr. BP Care maintains balanced blood flow thus healthifies the heart.

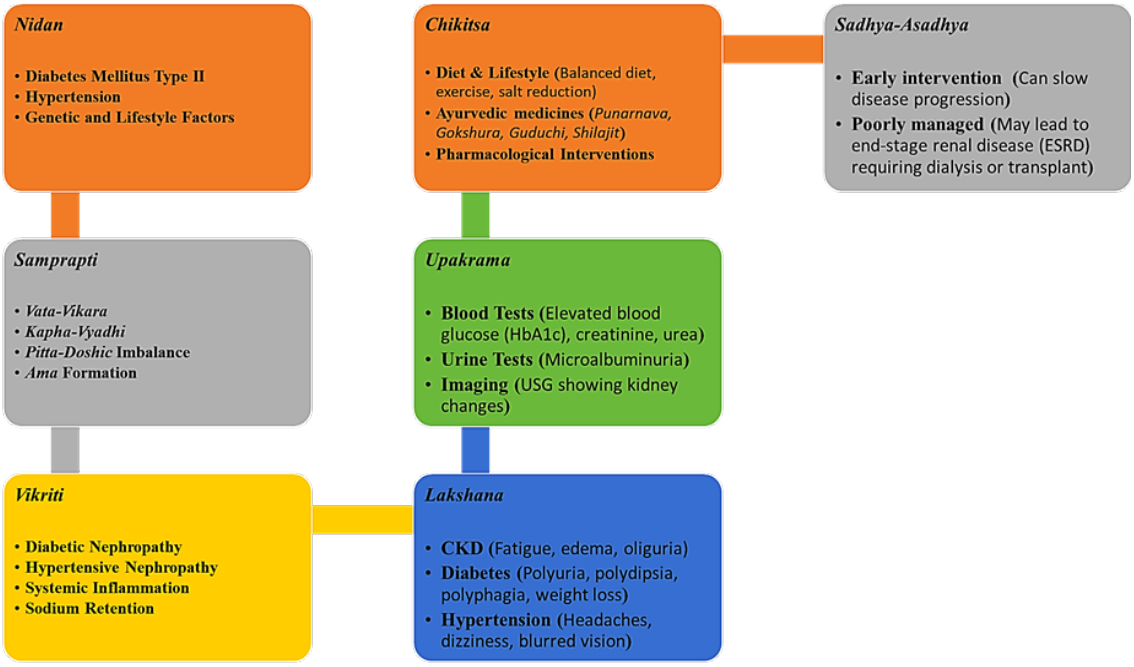

Fig 1: *Samprapti* of the case study

Conclusion

In *Ayurvedic* medicine, managing conditions like Chronic Kidney Disease (CKD) coexisting with Type II Diabetes Mellitus (T2DM) and hypertension focuses on balancing the body's *doshas* (*Vata, Pitta*, and *Kapha*), restoring optimal digestion, and supporting the elimination of toxins. A renal-friendly diet is crucial, focusing on controlling protein intake to reduce kidney burden. Foods that support kidney function such as ghee (clarified butter), whole grains are beneficial. Avoiding high-sodium foods and those rich in potassium or phosphorus is important. *Ayurvedic* medications like *Punarnava* are used for kidney health as it helps in r
Gokshura is used to support renal function and detoxify the kidneys. A low glycemic index diet with regular meals, focusing on whole grains, legumes, vegetables, and low-sugar fruits, helps manage blood sugar levels. *Jamun, Gudmar*, and *Karela* are commonly used to balance blood sugar levels and enhance insulin sensitivity. Foods that promote heart health such as those rich in omega-3 fatty acids, antioxidants, and Potassium (like *amla,* fenugreek, and sesame seeds) help in controlling blood pressure. *Ayurvedic* medicines like *Ashwagandha, Brahmi*, and *Shankhpushpi* are known to help manage stress and reduce hypertension by calming the nervous system and improving circulation. Moderate activities like walking, yoga, or swimming help regulate blood pressure, improve insulin sensitivity, and support kidney health by enhancing circulation. Practices such as *Pranayama* (breathing exercises), meditation, and mindfulness are essential to managing stress, which plays a significant role in hypertension and diabetes. The goal is to restore balance within the body, improve organ function, reduce symptoms, and ultimately improve quality of life. Collaboration with an *Ayurvedic* practitioner is essential to tailor a plan based on the patient's unique constitution and health conditions. Additionally, it is crucial to work alongside conventional medical treatments to ensure a safe and integrative approach to managing these chronic diseases.

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