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“AN AYURVEDIC INTERVENTION IN THE MANAGEMENT OF PRAMEHAJANYA UPADRAWA VIS-AVIS DIABETIC NEPHROPATHY WITH SPECIAL REFERENCE TO MICROALBUMINURIA: A PILOT STUDY”

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ABSTRACT:

Diabetes mellitus is a multifactorial clinical syndrome affecting multiple systems and organs. Type-1 DM is an autoimmune disease characterised by antibody-mediated and cell-mediated destruction of pancreatic cells, while Type-2 DM is characterised by relative deficiency and resistance to insulin action. One of the microvascular complications of diabetes mellitus is diabetic nephropathy, also known as diabetic kidney disease (D.K.D.), leading to end-stage renal disease (ESRD) in due course of time.

In Ayurveda classical texts, although there is no direct reference in Prameha Chapter of renal complications, in 'Mutraghata Chapter' a few similar conditions are explained and hence may be co-related with nephropathies. The disease prameha happens due to derangement into Tridoshas (three humors), and especially Vata dosha dominance in etiopathogenesis leads to Madhumeha, the nearest co-relate of D.M.

In the present study, pre-diagnosed patients of Type-2 D.M. were randomly selected and screened for microalbuminuria levels, i.e., the albumin levels in urine ranging between 30-300 mg/24 hr. urine. An Ayurvedic drug 'Gokshura-BBrihatyadi Kashaya' was administered in the dose of 50 ml twice daily for 60 days. The subjective and objective parameters were assessed before treatment and after completion of 60 days, which shows a significant reduction in both types of parameters.

KEY WORDS:- Diabetic Nephropathy, Gokshura Brihatyadi Kashay, Complications Of DM, Microalbuminuria,

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INTRODUCTION

Diabetic nephropathy is a microvascular complication, meaning it affects mostly the capillary level of renal vasculature, which eventually leads to glomerular basement membrane thickening, mesenchymal cell proliferation, and glomerulosclerosis [1]. The four major pathological pathways due to hyperglycemia are a) non-enzymatic glycosylation, b) polyol pathway, (c) hexose monophosphate shunt pathway, and d) protein kinase-c pathway, resulting in overproduction of superoxides leading to increased oxidative stress and glomerular damage. [2] Diabetic nephropathy is one of the leading causes of end-stage renal disease and accounts for 25%–40% of all cases of ESRD's [3].

In a cross-sectional epidemiological study in diabetics, the prevalence of microalbuminuria was found to be 39.8%, and the prevalence of macroalbuminuria was 18.8%. [4] The Egyptian renal data system (1996-2001), evaluated for the prevalence of diabetic nephropathy, showed a gradual increase from 8.9% in 1996 to 14.5% in 2001. [5] Renal failure is the second leading cause of death in diabetics. [6]

Although angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) are used for the prevention of nephropathies, these drugs are not always safe and effective. Hemodialysis significantly impairs quality of life, and renal transplants are having their own limitations. [7]

In the present study, the earliest manifestation of diabetic nephropathy—microalbuminuria, i.e., urinary excretion of albumin, i.e., 30-300 mg/24 hr urine—is considered as a central parameter [8] and analysed for the effect of the Ayurvedic intervention 'Gokshura-Brihatyadi Kashaya' mentioned by Acharya Vagbhata in 'Ashtanga Hridayam' [9] The whole idea behind the study is to prevent the stage of overt nephropathy and thereby prevent the progress of the disease. Six patients with Type-2 DM were screened for microalbuminuria studies on the basis of inclusion-exclusion criteria, and an ayurvedic drug was administered in prespecified dosages. The subjective and objective assessment after 60 days showed encouraging results.

AIM AND OBJECTIVE

To evaluate the efficacy of 'Gokshura Brihatyadi Kashaya' in Pramehajanya upadrava vis-à-vis diabetic nephropathy with special reference to microalbuminuria.

MATERIAL AND METHODS

Study Design

Prospective, Single arm, Clinical trial.

Location of Study

O.P.D and I.P.D. of LKR Ayurved College, Hospital

Sample Size –

No Standard method was used to calculate sample Size. 6 patients were selected for pilot study.

Preparation of Medicine

As per the textual reference in Ashtang Hridayam, the raw drugs required to prepare the medicine were selected and purchased from a GMP-certified pharmacy. The Kashaya was prepared under expert supervision at the R.S.B.K. department of the home institute.

Table showing drug details^[10]

Sr. No.	Name of Drug	Latin Name
1	Brihati	Solanum indicus Linn.
2	Kantakari	Solanum Suratteense burm F.
3	Kutaja phala	Holarrhena Antidysevtrica Linn.
4	Patha	Cissampelos Pariera Linn.
5	Madhuka	Glyeerhiza glabra Linn.
6	Gokhsura	Tribulus Terrestris Linn.

Administration of drug

The patients were advised to take 25 grammes of coarse powder and to add 400 ml of water to it. Then to boil it till it gets reduced to 1/8th quantity, i.e., 50 ml. Kashaya prepared is to be taken twice a day before food [11].

Inclusion Criteria.

- 1) patients of either sex and Age between 40 to 70 yrs.
- 2) pre diagnosed patients of type-2 DM with positive retinal changes on fundoscopy.
- 3) patients of Diabetic Nephropathy up to stage overt Diabetic Nephropathy with or without Changes in Sr. albumin Sr. Creatinine, & blood urea.

Exclusion Criteria

- 1) patients of type-1 DM and of type-2 on Insulin therapy.
- 2) patients having C.C.F., Cardiomyopathies, C.K.D, HTN, morbidly obese and other severe Systemic illnesses like HIV, TB etc.

Subjective and Objective parameters.

Table Showing Subjective and objective parameters with gradation.

Sr No.	Symptoms ^[12, 13]	Gradation	
1	Akshikuta Shotha (Periorbital oedema)	Grade 0	No Oedema
		Grade 1	Oedema reducing to normal within 1hr
		Grade 2	Oedema reducing to normal within 1-6 hr
		Grade 3	Persistent Oedema
2	Pada shotha (Pedal Oedema)	Grade 0	No Oedema
		Grade 1	Occasional oedema
		Grade 2	Only visible in evening Hours
		Grade 3	Persistent oedema throughout day and night
3	Sarvanga Shotha (Anasarca)	Grade 0	No Oedema
		Grade 1	Minimal oedema
		Grade 2	Moderate oedema
		Grade 3	Sever oedema
4	Mutralpata (scanty Micturition)	Grade 0	2000 ml and above in 24 hrs
		Grade 1	2000 to 1500 ml in 24 hrs
		Grade 2	1500 ml to 1000 ml in 24 hrs
		Grade 3	Below 1500 ml
5	Kshudhalpata (Loss of appetite)	Grade 0	Desire to eat
		Grade 1	Decreased desire to eat with no nausea
		Grade 2	Decreased desire to eat with nausea
		Grade 3	No desire to eat with serve nausea
6	Hrillas / Chhardi (nausea & Vomiting)	Grade 0	No nausea
		Grade 1	nausea Without Vomiting
		Grade 2	nausea Without Vomiting Occasionally
		Grade 3	nausea Without Vomiting persistently
7	Microalbuminuria	Grade 0	0-29mg / 24hr urine
		Grade 1	30- 99 mg / 24hr urine
		Grade 2	100-199 mg / 24hr urine
		Grade 3	200-300 mg / 24hr urine

Observation and result

Table Showing Percentage wise relief in subjective & objective Parameters.

Sr No.	Symptoms	Percentage wise relief
1	Akshikuta Shotha (Periorbital oedema)	75 %
2	Pada shotha (Pedal Oedema)	53.49%
3	Sarvanga Shotha (Anasarca)	50%
4	Mutralpata (scanty Micturition)	56%
5	Kshudhalpata (Loss of appetite)	67%
6	Hrillas / Chhardi (nausea & Vomiting)	46%
7	Microalbuminuria	27%

Table Showing Percentage wise relief in subjective & objective Parameters.

Sr. No.	AkshittkutaShotha		Pada shotha		Sarvang a Sotha		Mutralpata		Kshudhal pata		Hrillas / Chhardi		Microalbuminuria (mg/24 hr urine)	
	BT	AT	B T	A T	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	2	1	1	0	0	0	1	0	1	0	1	0	256	232
2	2	0	1	0	1	0	0	0	2	0	2	0	265	234
3	2	1	2	1	0	0	1	0	3	1	3	1	126	116
4	1	0	2	0	1	0	2	0	2	1	1	0	127	114
5	1	1	1	0	0	0	1	0	2	0	1	0	129	116
6	1	0	1	0	1	0	1	0	2	0	2	0	157	134

DISCUSSION

In this study, 6 individuals fulfilling the criteria for diagnosis were selected. It is observed that in most subjective parameters there is more than 50% relief.

Sarvang shotha was mild grade and present in 3 patients only. Hrillas and Chhardi symptoms are reduced by 46%. Microalbuminuria levels showed a decline, showing that glomerular alterations are stable or declining.

Probable mode of action-

Brihatyadi Gana drugs are stated tridosha Shamak, Pachaneeya, Hridrogaghna, and mutrakrichrahara by Acharya Sushruta and Acharya Vaghata.

Drugs like brihati, kantakari, and patha have Katu, tikta rasa dominance with ushna Virya. These drugs are especially tridosha Shamak, Deepaneeya, and Pachaneeya, and have diuretic action.

Drugs like madhuka and gokshura are rasayana, diuretic, and detoxifiers.

With these properties, this unique combination may be helpful in reducing the hyperglycaemic effect on the glomerulus and thereby maintaining a normality to the glomerular basement membrane; it restricts the progression of glomerulosclerosis.

CONCLUSION

The study concludes that 'Gokshura Brihatyadi Kashaya' in the dose of 50 ml twice a day helps in restricting albumin loss in urine and thereby delaying the progression of glomerulosclerosis. Along with preserving renal functions, it pacifies other symptoms.

The present study is a pilot study on a small sample. In future multicentric studies, a larger sample size may be required to validate the nephroprotective effect of the trial drug.

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